CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

SIGNIFICANT ISSUES

The purpose of the alternatives is to allow the decision maker to consider ways to address and resolve issues recognized during the scoping process. The resolution of significant issues forms the framework of an alternative, with the resolution of lesser issues included around the alternative's central theme. This section describes how those significant issues led to the developing of the alternatives.

The development of alternatives centered on addressing regulatory issues in six general areas:

- Coordination between BLM and state regulatory agencies.
- Notice-Plan of Operations threshold.
- Defining performance standards.
- Financial assurance for performing reclamation.
- Regulation enforcement and penalties for noncompliance.
- Consistency with the National Research Council report (NRC 1999).

Although other relevant issues were considered, these significant issues played a major role in defining the alternatives to be analyzed in detail.

State-Federal Coordination

A significant issue consists of maintaining and improving coordination between the states and BLM and determining the relative level of responsibility for regulating mineral exploration and development. Alternatives developed to address this issue range from turning the program entirely over to state regulation to having BLM always assume the lead role for regulating mineral activities on public lands.

Some states and many industry representatives commented that the existing state-federal programs are adequate to regulate mining and that the existing regulations provide for the proper level of coordination to eliminate duplication. This position is reflected in Alternative 1, which would maintain the existing regulations.

Others commented that BLM regulation is redundant and not needed. Alternative 2 was developed to address these concerns. Alternative 2 would give the states the sole responsibility for day-to-day regulation and reduce BLM's role in regulation to periodic general oversight. State programs would meet the Federal Land Policy and Management Act (FLPMA) requirement of preventing unnecessary or undue degradation.

Alternative 3 was designed to give the option of deferring to state requirements for some, possibly large, portions of regulations while maintaining BLM concurrence authority on individual projects. This alternative would allow states to take the lead whenever possible yet maintain BLM's ability to regulate individual projects.

Some commenters expressed concern that anything less than a program of complete federal regulation of operations on federal lands would not adequately protect the environment. Alternative 4 addresses this concern with regulations that require BLM to play the lead role in all aspects of mining regulation on public lands. Although state regulations would still apply under Alternative 4, corresponding federal regulations would be at least as stringent and would guide the activity with design-based standards.

Alternative 5 would address comments that the existing system is working fine by leaving the state-federal coordination basically unchanged. At the same time, Alternative 5 would incorporate NRC's recommendation that BLM develop procedures for referring activities to the states for enforcement.

Notice or Plan of Operations (Plan) Threshold

Alternative 1 in this chapter describes the existing regulations' 5-acre threshold between when operations must submit Notices and when they must prepare Plans of Operations. Briefly, a Notice is required for surface disturbance of 5 acres or less during a calendar year, whereas a Plan of Operations is required for disturbance of more than 5 acres in a calendar year, or disturbance of any size exceeding casual use and occurring on special status areas.

BLM received a wide range of comments on this threshold. Some commenters wanted the threshold left as it is. Alternative 1 would not change the threshold and addresses this comment. Some commented that the requirements to file a Notice or Plan duplicated the filing requirements under state regulatory programs and were not needed. Eliminating the BLM filing and review requirements was included in Alternative 2 to address this issue.

Alternative 3 responds to comments that the current 5-acre Notice threshold is not always suitable, and to the recommendations of the NRC (1999) report. Alternative 3 would maintain the Notice provision but change the threshold from 5 acres of surface disturbance to a criterion based on mining versus exploration. Thus, operators proposing mines or collecting bulk samples exceeding 1,000 tons must file a Plan of Operations regardless of the acreage that would be disturbed, even if it is less than 5 acres. This approach responds to the comments that the Notice or Plan threshold should be driven mainly by the type of activity, not necessarily its size. Special status lands, where Plans of Operations are always required, have been expanded under Alternative 3 to address comments that sensitive lands and resources receive increased protection.

Some commenters were concerned that allowing operations to be conducted under a Notice

would never be suitable because no National Environmental Policy Act review or opportunity for public involvement would be required. Alternative 4 addresses that concern by eliminating the Notice provision and requiring Plans of Operations for any surface disturbance exceeding casual use.

Alternative 5 is restricted to just implementing the NRC (1999) recommendations in response to comments that BLM should consider an alternative that would change the regulations only where NRC has recognized regulatory gaps. Alternative 5 responds to these comments and proposes a Notice-Plan threshold based on mining versus exploration, the same as Alternative 3. Because NRC did not recommend deleting the special status lands where a Plan is always required, Alternative 5 would retain the existing special status land categories.

Performance Standards

An important aspect of the 3809 regulations consists of the standards that govern how operators must control the extent of impacts on the ground. Alternatives were developed to address comments on the following:

- Environmental resources for which standards should be developed.
- Whether standards should be design or outcome oriented.
- Level of environmental protection the standards should give.

BLM could have developed and analyzed other combinations of standards. But the alternatives selected for analysis give a reasonable representative range of impacts to help agency decision makers. Every alternative includes compliance with other state or federal laws and regulations as a minimum performance standard.

Alternative 1 includes the existing performance standards. It also addresses comments that the existing regulations are adequate and that the regulations should contain minimum standards with details developed on an individual project basis or through policy guidance as needed to prevent unnecessary or undue degradation.

Alternative 2 contains no BLM performance standards but relies on state environmental regulations and other federal environmental protection requirements. This alternative addresses the comments that BLM performance standards are not needed because other state or federal requirements are adequate to protect the environment. State requirements vary from general outcome-based standards to prescriptive design standards, depending on the state program.

Alternative 3 proposes outcome-based BLM standards. These standards address the issue that, in addition to the state and other federal standards, BLM should have its own performance standards for operations on public lands.

The proposed standards are written to focus on performance and outcome, with minimum direction on design or required technology. This approach addresses comments that BLM should not develop one-size-fits-all design standards but allow for site-specific environmental conditions, promote innovation, and focus regulation on the end-performance result. This approach also addresses recommendations by the National Research Council that BLM should continue to use performance-based standards.

The Alternative 3 standards incorporate existing policy and practices into a comprehensive set of regulations that give more consistency. Alternative 3 does the following:

- Addresses the issue that BLM should consider ways to balance environmental protection with mineral development and not increase the regulatory burden on operators.
- Addresses comments by operators that BLM offices vary too much in applying existing regulations and policies.
- Incorporates the concept of preventing substantial irreparable harm to significant resources within the definition of unnecessary or undue degradation. This new definition responds to comments and the NRC conclusion that BLM should better protect the most significant resources on public lands from any impact.

Alternative 4 proposes standards that would address two common comments: (1) the need for increased environmental protection from mining and (2) the need for minimum national design standards for exploration, mining, and reclamation. The performance standards in Alternative 4 would require more stringent levels of environmental protection, coupled with design requirements, to attain those stated levels of protection.

Alternative 5 addresses the comments that NRC did not recommend more performance standards in its report. Alternative 5 therefore retains the performance standards in the existing regulations.

Financial Assurance (Bonding)

BLM received many comments on the adequacy of financial assurance requirements, generally referred to as bonding, and what these requirements should cover. Typically, bonding is required as a compliance tool to ensure that the required reclamation is performed should the operator be unable or unwilling to do so. With the recent district court case on BLM's 1997 bonding regulations, and the NRC report, the issue of reclamation bonding is even more relevant today than when the regulation revision process began. Alternatives for addressing the issue of bonding have been developed in response to comments.

Alternative 1 uses the existing regulations (those in effect before the February 1997 revisions) that give BLM the discretion to require reclamation bonding for Plan-level operations, with no set minimum or limit on the amount. Notice-level operations are not bonded. Alternative 1 addresses the comments that bonds should be held for larger operations or for operations in

sensitive areas, where the risk is greatest. At the same time Alternative 1 addresses the comment that small-mine operators or persons engaged in exploration should be exempt from the bonding requirements because of the burden that bonding presents to the small operator and the small amount of surface that small operations disturb.

Alternative 2 provides for no reclamation bonding by BLM. Financial assurances would be required according to state requirements. This provision addresses the comment that bonding by BLM duplicates most bonding required under state programs and is not needed.

Alternative 3 requires bonding at the actual cost of the reclamation for all Notice- and Plan-level operations and would allow the public comment before final bond release. Bonding would include costs for interim stabilization and for post-reclamation treatment or maintenance such as water treatment, safety berms, and fencing. This provision addresses the public comments and NRC recommendation that all disturbances, no matter what size, should be fully bonded to protect the public.

Alternative 3 allows states to administer the bonding program to address the comment that BLM bonding duplicates state requirements and may impose an unneeded burden on operators. But BLM would have to agree to the bond amount and release.

Alternative 3 would also phase out the use of corporate guarantees as a form of financial assurance. This provision addresses comments that corporate guarantees are not secure if an operator files for bankruptcy and NRC's conclusion that financial assurance mechanisms should be secure.

Alternative 4 also requires that all operations be fully bonded for reclamation but further requires that added bond be posted for cleanup or remediation of unplanned events such as spills or failures. Alternative 4 addresses the comment that bonding solely for nonperformance of reclamation is not adequate but that bonding should be used to correct environmental damage from unplanned events.

Alternative 5 is basically the same as Alternative 3 in that all operations greater than casual use would be bonded for the full estimated cost of reclamation. Alternative 5 addresses comments that the regulations for bonding should be changed only in accordance with NRC's recommendations. Therefore, Alternative 5 does not include the procedural requirements for public notice on bond release, which are in Alternative 3.

Enforcement and Penalties

Alternative 1 provides administrative procedures, such as notices of noncompliance and possible

court action, for unresolved noncompliance. This alternative responds to comments that enforcement is not a large problem and that BLM does not need new enforcement regulations because the states can handle existing problems.

Alternative 2 addresses the comments that BLM should leave most enforcement actions up to the states, eliminating a potentially duplicative process.

Alternative 3 would give BLM more enforcement tools, such as suspension and revocation authority and discretionary administrative penalties. This provision addresses three comments:

- BLM needs its own enforcement program for public lands rather than having to rely on going directly to court.
- A federal program is needed because some states are not always pursuing enforcement actions.
- NRC's recommendation that BLM should be able to issue administrative penalties for violations of its rules.

Alternative 4 provides more enforcement provisions than Alternative 3 by making administrative penalties mandatory, not subject to agency discretion, and by establishing permit blocks for noncompliance. This provision responds to those who feel that state enforcement programs are not strong enough and want a federal enforcement program with mandatory action required by BLM for noncompliance.

Like Alternative 3, Alternative 5 would address enforcement and penalties but would not cite criminal penalties because NRC did not recommend such penalties. Alternative 5 addresses comments that BLM limit any regulation change to just the NRC recommendations.

NRC Report Consistency

Congress directed that BLM could expend funds to finalize the proposed 3809 regulations during fiscal year 2000 only on final regulations that are "not inconsistent" with the recommendations in the NRC report. BLM considers that this requirement prohibits it from developing and selecting a final regulation alternative that would contradict or oppose a NRC recommendation during fiscal year 2000. Where NRC is silent on an aspect of the existing regulations, BLM-proposed changes would not be inconsistent with any NRC recommendations. In response to this requirement, BLM has modified Alternative 3, the proposed regulations, not to be inconsistent with the NRC recommendations.

Others have commented that the congressional requirement allows BLM to make only the regulation changes recommended by NRC and that any change in the regulations outside those recommended would be inconsistent with the NRC report. Alternative 5 has been developed to address this view.

Alternative 1–retention of the existing regulations–*would* be inconsistent with the NRC recommendations, but would not conflict with congressional requirements. Congress did not require BLM to change the regulations, only that should BLM make changes, they could not be inconsistent with NRC's recommendations.

Likewise, Alternative 2 would be inconsistent with the NRC recommendations because it would lessen many of the filing, bonding, and operating requirements in direct contradiction to many NRC recommendations.

Alternative 4 is also inconsistent with the NRC recommendations. Eliminating the Notice provisions and applying design-based performance standards would impose requirements much greater than those recommended by NRC as needed to protect the public lands.

Although Alternatives 1, 2, and 4 are not consistent with the NRC recommendations, they remain feasible alternatives. They address the program issues of concern to the public and could still be selected for implementing once the congressional limits on the contents of the final regulations expire.

REGULATIONS COMMON TO ALL ALTERNATIVES

Under all alternatives, national environmental protection laws and regulations apply to activities conducted under the Mining Law on BLM-managed lands. In addition, although local and state governments cannot impose land use planning or zoning restrictions on a federal land use such as mining, they can regulate how mineral activities are conducted. All of the western states have developed mining regulations that apply to activities on BLM-managed lands. As a result, mineral exploration and development are subject to compliance with a variety of local, state, and federal environmental laws and rules independent of any requirements imposed by the 3809 regulations. For example, major environmental laws such as the Clean Water Act, the Clean Air Act, the Endangered Species Act, the Migratory Bird Treaty Act, the Resource Conservation and Recovery Act, and the Archaeological Resources Protection Act apply to mineral activities under all of the alternatives.

Appendix C lists other applicable requirements, laws, or reviews. Appendix D discusses state programs that govern mineral projects under all alternatives. On this backdrop of other existing laws, regulations, and programs, and state regulatory programs, BLM considers the alternatives for applying the 3809 regulations.

DESCRIPTION OF THE ALTERNATIVES

This section describes in detail the five alternatives (including the Proposed Action and the No

Action alternatives) that this EIS considers. Alternative 1 (Existing Regulations, No Action) would have BLM continue to use the existing 3809 regulations. Alternative 2 (State Management) would remove BLM from routine regulation of mineral activities and rely exclusively on the state programs to regulate mineral activities on BLM-managed lands. Alternative 3 (Proposed Action) contains BLM's proposed regulations, as revised after public comment. This alternative constitutes the BLM's Preferred Alternative. Alternative 4 (Maximum Protection) would increase the level of environmental protection and impose a design-oriented regulatory approach led by BLM. Alternative 5 (NRC Regulations) would change the regulations only where the NRC report recommends changes.

The five alternatives are described below in detail. Specific regulation language has not been drafted for Alternatives 2, 4 or 5. Should any of these alternatives be selected for implementation, BLM would prepare regulations to incorporate the concepts of the alternative. Following the detailed alternative descriptions is a discussion on the implementation costs for each alternative and a summary table (Table 2-1) that compares the major provisions of each alternative.

Alternative 1: Existing Regulations (No Action)

Alternative 1 would continue to use the existing surface management regulations at 43 CFR 3809 (Appendix A). These are essentially the same regulations that have been in effect since 1981. Over the years BLM has developed policy documents, manuals, and handbooks that give guidance on how the regulations are to be implemented. The following is a description of the existing regulations by major provision, along with a discussion of how BLM field offices are implementing the program.

Unnecessary or Undue Degradation Definition

The existing regulations require operators to prevent *unnecessary or undue degradation* of the public lands. Unnecessary or undue degradation (1) recognizes that locatable mineral activities cause environmental impacts and (2) seeks to keep those impacts at the minimal level needed for the operator to conduct activities as authorized under the mining laws. As defined in the existing regulations, unnecessary or undue degradation requires operators to do the following:

- Create no surface disturbance greater than would normally result from a prudent operator's performing the activity.
- Consider the effects of operations on other resources and land uses.
- Begin and complete reasonable mitigating measures, including the reclaiming of disturbed areas.
- Not create a nuisance.
- Comply with environmental statutes and regulations.

Project Area Definition

The existing regulations define a project area as a single tract of land upon which operations are conducted. The project area includes disturbance from building or maintaining roads, powerlines, pipelines, or other means of access. The definition specifies that the project area may include one or more mining claims under the same ownership. But in practice the project area often includes claims under multiple ownerships or may involve no claims if the land is open to activity under the Mining Law. BLM uses the working definition that the project area is the contiguous part of the same operation under the operator's control and includes disturbance for support facilities such as access roads, powerlines, or pipelines.

Public Lands/Federal Lands Definition

The definition of public lands determines to what lands the 3809 regulations apply. The existing regulations apply only to BLM-administered surface where the underlying mineral estate is subject to operations under the Mining Law. The existing regulations do not apply to lands where only the mineral estate is federal and the surface estate is privately owned, such as lands patented under

the Stock Raising Homestead Act. Nor do the regulations apply to land whose surface estate is managed by BLM but whose mineral estate is privately owned. Locatable mineral activities on wilderness study areas (WSAs) administered by BLM are not regulated under the 3809 regulations but by subpart 3802, which is not part of this rulemaking.

Often locatable mineral operations occur on a mixture of private lands and BLM-administered lands. In these cases the 3809 regulations apply only to activities on the public lands. But if any associated environmental analysis is conducted under the National Environmental Policy Act, the analysis must consider the environmental impacts of the BLM approval on all lands, regardless of ownership.

Disturbance Categories and Thresholds

The existing 3809 regulations are based on three administrative classifications of surface-disturbing activities on public lands: casual use, Notices, and Plans of Operations.

Casual Use. Casual use refers to activities that only negligibly disturb public lands and resources. Casual use generally does not include the use of mechanized earth-moving equipment, explosives, or motorized equipment in areas closed to off-road vehicles. Some BLM field offices have considered the use of small suction dredges or portable drills to be casual use.

Operators engaged in casual use do not have to notify BLM of their activities, and BLM does not have to approve their operations. Casual use operations, however, are subject to monitoring by BLM to ensure against unnecessary or undue degradation. Disturbance created under casual use must still be reclaimed.

Notices. Activities that exceed casual use but disturb 5 acres or less during any calender year can be conducted under Notices unless special status areas are involved. A Notice is often used for exploration involving road building or drilling. Small mines can also operate under Notices. Notice-level activities may begin after a brief review by BLM for potential resource conflicts that would result in unnecessary or undue degradation. All disturbance created under Notices must be reclaimed. No more than 5 acres may remain unreclaimed at any given time, or the operator must obtain an approved Plan of Operations. Variations exist among BLM offices as to when reclamation is considered complete for determining acreage. One interpretation is that acres that have been graded and seeded are not counted, whereas other offices require reestablishing vegetation cover for acres that are not to be counted.

Plans of Operations. An approved Plan of Operations is required for surface disturbance that exceeds 5 acres, or for any surface-disturbing activity exceeding casual use in special status areas such as the following:

- The California Desert Conservation Area.

- Areas within or potential additions to the National Wild and Scenic Rivers System.
- Areas of critical environmental concern (ACECs).
- BLM-administered areas in the National Wilderness Preservation System.
- Areas closed to off-road vehicle use.

Claim Validity and Valid Existing Rights

The existing 3809 regulations do not address mining claim validity. In fact, the Mining Law does not require operators to have a mining claim or mill site before conducting operations on BLM lands. If the lands are open to locatable mineral activity under the Mining Law, operators do not need a mining claim to conduct operations.

On lands segregated or withdrawn from locatable mineral activity under the Mining Law, only in wilderness areas do the regulations (43 CFR 8560) require that mining claims be examined for validity before BLM approves Plans of Operations. In other segregated or withdrawn areas BLM can conduct validity examinations before processing Notices or approving Plans. But the time needed to complete the exam exceeds the 15-day Notice review time frame and would probably exceed the time needed for review and approval of a Plan of Operations. BLM can withhold authorization for Plans pending completion of a validity examination if a question arises as to a claim's validity.

Common Variety Minerals

Whether the mineral to be mined under a Notice or Plan is locatable under the Mining Law or saleable under the Materials Sales Act may be disputed. The existing 3809 regulations do not address this situation. The existing regulations (43 CFR 3610) prohibit the sale of mineral materials from mining claims even with agreement of the mining claimant.

The working policy has been (1) to process the Notice or Plan of Operations under the 3809 regulations and (2) to establish an escrow account. In this account the operator has to deposit monies representing potential fair market value should the mined material be found not to be locatable and such monies are owed the government. When BLM completes a common varieties determination (often a lengthy process), the escrowed royalty from ongoing operations is either returned to the operator or paid to the government. If the determination finds that the mineral is of common variety, BLM then converts the 3809 authorization to a material sale contract.

State-Federal Coordination

The existing 3809 regulations state that the rules do not preempt state laws and regulations governing operations on federal lands. The most protective regulatory provision usually applies. Appendix D summarizes state regulatory programs.

The existing regulations also allow BLM to enter into agreements with the states for joint regulatory program administration to prevent unnecessary or undue degradation and to eliminate duplication. Wherever possible, the agreements can allow state administration and enforcement of the program.

Under the existing regulations BLM has developed joint agreements for regulating operations in all of the western states except Arizona. Arizona and BLM are working on developing an agreement.

In states with laws similar to the National Environmental Policy Act (NEPA)–California, Montana, and Washington–BLM has based decisions on the environmental analysis prepared under both state and federal laws in consultation with state regulatory agencies. In other states that do not have statutes analogous to NEPA, BLM invites state and local agencies to participate in preparing environmental assessments and EISs, often designating state and local agencies as formal cooperating agencies.

Existing Operations

When the existing regulations went into effect in 1981, operations in existence were allowed to continue but were required to file either Notices or Plans of Operations, depending on the size of disturbance. Notice-level operations were required to file a Notice within 30 days of the effective date of the regulations. Operators required to file a Plan of Operations had to do so within 120 days but could obtain an extension of 180 more days. All operators required to file in 1981 have either done so or are no longer active.

Notice and Plan of Operations Content and Processing

Notices. No standard form is required for Notices, but Notices must adequately describe the activities that would occur and state that all disturbed areas will be reclaimed to the standards of the regulations. The operator must give the Notice to BLM at least 15 calendar days before beginning operations. BLM must complete its review of the Notice within 15 calendar days of receiving the complete Notice.

BLM's review of Notices is not a federal action, so no environmental documentation must be prepared under the National Environmental Policy Act. But a variety of BLM specialists do review Notices to determine if operations would cause unnecessary or undue degradation. The BLM minerals specialist reviews Notices to ensure that they are complete and that Plans of Operations are not needed. After the first review, other resource specialists conduct an interdisciplinary review of Notices for potential resource conflicts that would cause unnecessary or undue degradation.

The standards for reviewing Notices under the existing regulations and policy are as follow:

- Access routes must be planned for only the minimum width needed for operations and must follow natural contours, where practicable, to minimize cuts and fills.

- All tailings, dumps, and deleterious substances and other waste produced by operations must be disposed of to prevent unnecessary or undue degradation.

- At the earliest feasible time, operators must reclaim areas disturbed by taking reasonable measures to prevent or control on- and off-site damage to public lands.

- Reclamation must include saving topsoil to apply to the land's surface after disturbed areas have been reshaped; taking measures to control erosion, landslides, and water runoff and to locate, control, and remove toxic materials; reshaping the disturbed area; applying topsoil; revegetating disturbed areas; and rehabilitating fisheries and wildlife habitat.

Other items are also reviewed:

- Verifying land status.
- Checking to ensure that the area is open to the Mining Law.
- Determining whether the operation would disturb 5 acres or less during a calendar year.
- Determining if the proposal covers the same ground as previous operations under another Notice.
- Recognizing potential conflicts with threatened and endangered species or cultural and paleontological resources.
- Recognizing potential compliance problems with state and federal laws. Often BLM inspects project areas with operators to detect and address areas of concern before disturbance.

Having reviewed the Notice, BLM informs the operator that public lands would or would not be unnecessarily or unduly degraded. This notification includes any changes and recommendations the operator needs to follow to prevent unnecessary or undue degradation and a statement reminding the operator that a final inspection of the reclaimed area is required.

Plans of Operations. No standard form is required for filing Plans of Operations. The operator must submit information, such as operator name and mailing address, a map or sketch of the operation, and enough information to describe the proposed operation and the reclamation measures to be used. BLM has 30 days to review a Plan of Operation and either approve it or advise the operator of the following:

- Of any other information needed to evaluate the Plan.
- Of measures required to prevent unnecessary or undue degradation.
- That more time, not to exceed 60 days, is needed for BLM to review the project.

If the Plan of Operations requires preparing an EIS, Section 7 consultation under the Endangered Species Act, or Section 106 compliance under the National Historic Preservation Act, then the review time is not limited.

A decision on a Plan of Operations is a federal action requiring analysis under the National Environmental Policy Act. The environmental analysis may be accomplished by several means. An environmental assessment (EA) or an EIS is the most common document prepared for approval of new or modified Plans of Operations.

The EA is used to determine if the operations would significantly affect the environment. If no significant impacts are found, a finding of no significant impacts and decision record (FONSI/DR) are prepared, and BLM approves the project if it would not create unnecessary or undue degradation. Operations that would cause significant impacts require preparing an EIS. (More guidance on elements that could trigger an EIS can be found in Department of the Interior Manual 516 DM 6, Appendix 5.)

A draft EIS is prepared to disclose potential impacts and consider mitigation measures. The public and other agencies then review the EIS. After a final EIS is written, BLM prepares a record of decision (ROD), subject to requirements to prevent unnecessary or undue degradation. The amount of time to prepare an EA or EIS and approve a Plan is determined by the complexity of issues and expected impacts of the project. Time frames can be as short as several days or extend for more than 5 years for large projects.

The technical issues involved in approving a Plan of Operations for large open pit and underground mines have become increasingly complicated. BLM has adopted policies to address such issues as the water quality of pit lakes, acid rock drainage, cyanide use, migratory bird deaths, reclamation and chemical closure, and mine dewatering. To standardize methods for addressing these issues BLM has developed the acid rock drainage policy, cyanide management policy, and BLM Reclamation Handbook. In addition, the 43 CFR 3715 Surface Occupancy Regulations address occupancy issues for nonmining surface use. BLM state offices such as Nevada have also adopted reclamation revegetation standard guidance and a water resource policy to further implement the national policy direction.

Modifications

Operators can modify Plans of Operations at BLM's request. BLM must review and approve a significant modification of an approved Plan just as it would the initial Plan.
BLM can require a modification only after the BLM state director determines (1) that the reasons for the modification were unforeseen at the time of the initial Plan approval and (2) that the modification is essential for preventing unnecessary or undue degradation.

Temporary or Permanent Closure

Reclamation is required. No time frame is specified for completing reclamation or for the time during which an operation may be temporarily closed before undergoing final reclamation.

Performance Standards

General. The existing regulation's overall performance standard is to prevent unnecessary or undue degradation. To comply with this standard, operators must do the following:

- Cause no impacts beyond those considered due and necessary.
- Reclaim disturbed land.
- Comply with all local, state, or federal environmental laws and regulations.

During individual project review BLM develops specific requirements for preventing unnecessary or undue degradation.

Land Use Plans. The existing regulations do not address the relationship of exploration and mining to land use planning. Land use plans may give information on resources requiring consideration by operators. BLM uses land use plans–such as resource management plans–to name special status areas that require Plans of Operations instead of Notices, such as areas of critical environmental concern. The land use plan also determines where BLM would seek withdrawals of lands from operation of the Mining Law. But if the land is open to mineral entry, the existing 3809 regulations, not a particular land use plan, establish performance standards for operations.

Surface and Ground Water Protection. All operators must comply with federal and state water quality standards. National Pollution Discharge Elimination System (NPDES) permits are required from the Environmental Protection Agency (EPA) or a state-delegated authority by EPA for a discharge to surface water. In addition, some states require discharge permits for ground water.

Lakes that form in mine pits are generally not regulated under the NPDES system. In some states if the pit lake discharges to ground water, a permit may be required. BLM uses predictive modeling to estimate pit lake geochemistry and potential toxicity. Pit lakes found to be potentially toxic must be treated, eliminated, or restricted from access.

The existing regulations do not specify requirements for plugging drill holes. Field offices have been requiring plugging in response either to state requirements or to site-specific ground water concerns.

Wetlands and Riparian Area Protection. The existing regulations do not specify protection of wetland or riparian areas but require wildlife and fisheries habitat to be rehabilitated. Rehabilitating these habitats does add some protection to wetland and riparian areas. Section 404

permits, required by the Army Corps Engineers for dredging or filling in waters of the United States, provide for mitigating impacts to jurisdictional wetlands.

Soil or Growth Media Handling. The existing regulations require that operations save and reapply topsoil to disturbed areas where reasonable and practicable after reshaping disturbed land. The existing regulations do not specify requirements for segregating or preserving topsoil.

Revegetation Requirements. The existing regulations require revegetation of disturbed areas where reasonable and practicable. Revegetation must provide a diverse vegetation cover. Common practice is for most BLM field offices to review the operator's proposed seedmix. Revegetation is also a part of the requirement to rehabilitate wildlife habitat. The requirement in the definition of "unnecessary or undue degradation" not to create a nuisance is used to address noxious weed control.

Fish and Wildlife Protection and Habitat Restoration. The existing regulations require operators to act to prevent harm to threatened and endangered species and their habitats that might be affected by operations. An unmitigatable impact to a threatened or endangered species is one of the few resource conflicts that can prevent a Plan of Operations from being approved or a Notice-level operation from proceeding.

The existing regulations require that reclamation include rehabilitating fisheries and wildlife habitat. The regulations do not specify a time frame for achieving rehabilitation.

Protecting Cultural Resources. A Decision on a Plan of Operations requires BLM to follow the process in Section 106 of the National Historic Preservation Act to develop mitigation for cultural resources recognized before a Plan is approved. Since a Notice is not a federal undertaking, the Section 106 process does not apply. But BLM field offices review Notices and often visit project areas, instructing operators on avoiding cultural resources.

The existing regulations state that operators cannot knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, object, or cultural site discovered during operations. If a significant discovery is made during operations, the regulations require operators to immediately notify BLM and to leave such discovery intact. BLM has 10 working days to protect or remove the discovery at the government's expense, after which operations may proceed.

Protecting Paleontological Resources. The existing 3809 regulations do not contain a process for inventory and evaluation of paleontological resources like the procedures for cultural resources under the National Historic Preservation Act. The existing regulations state that operators cannot knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains. Operators must immediately notify BLM of any paleontological resources discovered during operations and leave such discoveries intact. BLM has 10 working

days to protect or remove the discovery at the government's expense, after which operations may proceed.

Protecting Cave Resources. The existing regulations do not specify performance standards for protecting cave resources. When operations would potentially harm cave resources, BLM considers them under the general requirements to prevent unnecessary or undue degradation.

Protecting American Indian Traditional Cultural Values, Practices, and Resources. The existing regulations do not specify performance standards for protecting American Indian traditional cultural values, practices, and resources. Often these resources are also historic properties that must be considered under the National Historic Preservation Act (NHPA). But NHPA does not prevent the disturbance of cultural resources. Rather, it provides a process for considering potential impacts and developing mitigation.

BLM must also consult with American Indians under other acts such as American Indian Religious Freedom Act (AIRFA). Consultation does not preclude the activity but allows discussion for developing mitigation. BLM has extensively consulted with American Indians on mine projects, and American Indians have often said that impacts to traditional cultural values, practices, and resources cannot be mitigated.

Roads and Structures. The existing regulations require an operator to do the following:

- Minimize surface disturbance.
- Use existing access where practical.
- Maintain safe design.
- Follow natural contours.
- Minimize cuts and fills.

Operators must consult with BLM for roadcuts greater than 3 feet on the inside edge. All structures must be built and maintained according to state and local codes. Placing structures is addressed in separate rules at 43 CFR 3715.

Handling of Potentially Acid-Forming, Toxic, or Other Deleterious Materials. The existing regulations state that reclamation must include measures to isolate, remove, or control toxic or deleterious materials. BLM imposes other requirements in response to the site-specific review when processing a Notice or Plan.

In the past decade more deeper, sulfide-bearing ores have been mined. As a result, acid rock drainage (ARD) has become an issue of concern for BLM when reviewing mining proposals. In 1992 BLM issued its acid rock drainage policy (Instruction Memorandum 96-79). This policy directs field offices to do the following:

- Review mining proposals for ARD potential.
- Require rock characterization.
- Emphasize source control of potentially acid-generating materials rather than treating effluent.

- Inspect operations at least quarterly.

Leaching and Processing Operations and Impoundments. The existing regulations do not refer to cyanide or other chemicals used in mineral processing or leaching. The regulations do require that reclamation include measures to isolate, remove, or control toxic or deleterious materials. BLM develops mineral leaching requirements during site-specific reviews while processing Notices and Plans.

In response to the increase in cyanide use on BLM-managed lands, BLM issued a cyanide management policy (Instruction Memorandum 90-566) in 1990. The policy guides field offices in managing cyanide operations by requiring BLM state offices to prepare cyanide management plans and by setting minimum standards for cyanide facility design, wildlife protection, monitoring, and quarterly agency inspections.

Stability, Grading, and Erosion Control. The existing regulations require reclamation to include reshaping disturbed areas where reasonably practicable and using measures to control erosion, landslides, and water runoff. A required slope angle or outcome is not specified for reshaping.

Pit Backfilling and Reclamation. The existing regulations do not specifically address mine pit backfilling but require that disturbed areas be reshaped "where reasonably practicable." The existing regulations also allow a stable highwall to be left where required to preserve evidence of mineralization but do not mention a time frame.

BLM field offices have dealt with pit backfilling on a project-specific basis, usually negotiating with operators for mitigation where backfilling a pit mine is uneconomic or infeasible. Sometimes offsite mitigation compensates for habitat lost to mining pits. Occasionally BLM has determined that backfilling is practical and has required partial backfilling or backfilling at sequential open pit mines.

Financial Guarantees (Bonding)

The existing regulations require reclamation bonds only for Plan-level operations with the amount left to BLM's discretion. No financial guarantees or reclamation bonding is required for Notice-level operations (except for Notice-level operators with records of noncompliance).

BLM has implemented several policies for bonding. Recently, reclamation bonds were limited to $1,000 per acre for exploration disturbance and $2,000 per acre for mining disturbance, except

for cyanide facilities or portions of operations with acid rock drainage potential, which were to be bonded at actual cost. The instruction memorandum that established the aforementioned bonding policy has expired, but some BLM field offices may still implement it.

As part of state-federal coordination, operations are bonded in cooperation with the state regulatory agencies to prevent double bonding of operators. Bonding varies from state to state. For example, in Nevada BLM holds the bond for the State of Nevada. In Montana the state holds the bond for operations on BLM lands.

Inspection and Monitoring

BLM develops monitoring programs while reviewing Notices and Plans of Operations. The operator conducts environmental testing (water, air, soil, etc.) and submits the results to BLM. BLM may take samples during inspections to verify that the monitoring data is reliable.

Operators must allow BLM to inspect operations to determine compliance. Current policy is for inspections four times annually where cyanide is used or where a significant potential exists for acid rock drainage, and two inspections per year for all other active operations.

BLM works with operators when they are not complying with federal and state laws and regulations. If these cooperative efforts yield no results, BLM issues a notice of noncompliance. If the operator still fails to comply, BLM may take other measures:

- Requesting help from federal or state regulatory agencies.
- Issuing records of noncompliance.
- Forwarding the case to the Department of the Interior Regional Solicitor and the Justice Department.

Penalties for Noncompliance

Under policy developed for the existing regulations, if an operator does not comply with a notice of noncompliance, BLM may establish a record of noncompliance. Operators with records of noncompliance must (1) file Plans of Operations for activities that would otherwise be conducted under Notices and (2) post a reclamation bond with BLM even if they have already posted a bond with the state. In other cases the courts may forbid unlawful activities and impose penalties for damages or violations of the 3809 regulations and the Federal Land Policy and Management Act.

Appeals Process

The existing regulations contain two processes by which BLM decisions may be appealed, depending on whether the operator or another party is appealing. All appeals must be filed within 30 days of a decision.

Operators that are adversely affected and want to appeal must appeal to the BLM state director. The state director then decides on the appeal. Operators adversely affected by a state director's decision may appeal that decision to the Interior Board of Land Appeals (IBLA). Anyone other than the operator that is adversely affected may appeal BLM's decisions directly to IBLA. BLM's decision is in full force and effect during an appeal before either the state director or IBLA. A stay from the effect of the decision may be granted while the appeal is pending.

State directors usually make decisions on appeals within several weeks or months. Appeals to IBLA take much longer. The current backlog in IBLA for a routine appeal is about 3 years. IBLA usually responds to requests for stays within 6 months. If IBLA grants a case expedited consideration, it may decide the case in less than a year.

Alternative 2: State Management

Under Alternative 2 BLM would defer regulating exploration and mining to the states. The 3809 regulations would define *unnecessary or undue degradation* to mean failure to meet all local, state, and federal laws and regulations for conducting exploration and mining. (Appendix D summarizes state regulatory programs.) BLM would develop no other rules.

BLM would neither review nor approve of any specific project. Nor would any federal decision or undertaking be subject to National Environmental Policy Act (NEPA) review or compliance with Section 106 of the National Historic Preservation Act (NHPA). Although they would still have to comply with federal laws such as the Clean Water Act and Endangered Species Act, mineral operations would not be regulated by BLM.

In accord with the Federal Land Policy and Management Act (FLPMA), BLM would continue to prepare land use plans to determine areas to be opened or closed to operations under the Mining Law through the withdrawal process. State regulators could also use land use plans for information on special management concerns in areas open to operations. BLM would continue to process mineral withdrawals and examine mining claims for validity to meet its land management objectives. But BLM would not be involved in day-to-day regulation of operations.

Unnecessary or Undue Degradation Definition

The 3809 regulations would define *unnecessary or undue degradation* to require only that the operator meet all local, state, and federal laws and regulations. Compliance with state programs for regulating mining would be considered adequate for preventing unnecessary or undue degradation as required by FLPMA.

Project Area Definition

Project areas would be defined according to state programs. Any exclusive use of access roads, powerlines, pipelines, etc. would require rights-of-way from BLM.

Federal Lands Definition

The definition of federal lands would not change.

Disturbance Categories and Thresholds

The disturbance categories used under the existing regulations would not apply under Alternative 2 because operators would not have to file Notices or Plans with BLM. BLM would have no category or threshold classification. The state would be responsible for all permitting of activities on BLM lands under state categories.

Claim Validity and Valid Existing Rights

Claim validity and valid existing rights under Alternative 2 would not change from the existing regulations. BLM would exercise its option of examining a mining claim when needed to protect resources.

Common Variety Minerals

The existing regulations would not change for common variety minerals. BLM would require an operator suspected of mining common variety minerals to place possible fair market value in escrow until after BLM completes a common variety determination. BLM might seek a court order to stop operations if the monies are not escrowed.

State-Federal Coordination

States would regulate all mineral activity on BLM lands. BLM would periodically evaluate the state program to determine if it is preventing undue or unnecessary degradation. BLM would also continue to use the land use planning and withdrawal process to decide which areas are open or closed to mining. BLM would give comments and input to states during their review and approval process for activity on BLM-administered lands. BLM's role would be that of a land owner.

Existing Operations

Existing activity would continue according to state requirements.

Notice and Plan of Operations Content and Processing

Operators would submit no Notices or Plans of Operations to BLM for review or approval but would follow state program requirements for content and processing of activities. BLM would not process applications, conduct project-level National Environmental Policy Act analysis, or make decisions. As a potentially affected landowner, BLM might give the states comments on individual actions.

Modifications

Modifications made to operations would be required, reviewed, and approved according to individual state requirements.

Temporary or Permanent Closure

Closure requirements and time frames would be determined by state regulations. Operations abandoned under a state program might be eligible for reclamation under the BLM abandoned

mine lands program.

Performance Standards

General. Performance standards would be based on state standards and requirements. The state standards for air, water, wildlife, reclamation, and other resources would be the controlling standards for operations on public lands. Other federal requirements such as the Endangered Species Act would continue to apply under the administration of the responsible federal agency.

Land Use Plans. BLM would retain all responsibility for preparing land use plans, designating special status areas, and determining areas open or closed to the operation of the Mining Law.

Surface and Ground Water Protection. All activities would be conducted according to state and federal water quality laws or the state program delegated under the Clean Water Act.

Wetlands and Riparian Area Protection. Operators would have to comply with state requirements and obtain permits from the Army Corps of Engineers for dredging or filling in waters of the United States under Section 404 of the Clean Water Act.

Soil or Growth Media Handling. Topsoil would have to be salvaged and reapplied according to state standards.

Revegetation Requirements. Disturbed areas would have to be revegetated according to state standards.

Fish and Wildlife Protection and Habitat Restoration. Operations would have to meet state standards for protecting fish and wildlife. The taking of a threatened or endangered species or migratory birds would still be prohibited under the Endangered Species and Migratory Bird Treaty Acts.

Protecting Cultural Resources. Operations would have to meet state standards for protecting cultural resources.

Protecting Paleontological Resources. Operations would have to meet state standards for protecting paleontological resources.

Protecting Cave Resources. Operations would have to meet state standards for protecting cave resources.

Protecting American Indian Traditional Cultural Values, Practices, and Resources. State standards for protecting American Indian traditional cultural values, practices, and resources

would have to be met. American Indians could request help from BLM to facilitate consultation with the state on a project's potential impacts. The Secretary of the Interior's trust responsibilities would continue, but BLM would not be in a position to require mitigation.

Roads and Structures. Roads would be built and maintained according to state standards and state and local codes. Structures are addressed in separate rules at 43 CFR 3715.

Handling of Potentially Acid-Forming Toxic or Other Deleterious Materials. Potentially acid-forming material would be managed according to state requirements. Discharges could not exceed state and federal effluent limits under the Clean Water Act.

Leaching and Processing Operations and Impoundments. Leaching and processing operations would have to be designed, built, and operated according to state standards.

Stability, Grading, and Erosion Control. Stability, grading, and erosion control would have to be accomplished according to state regulations.

Pit Backfilling and Reclamation. Mine pits would be backfilled or reclaimed according to state requirements.

Financial Guarantees (Bonding)

No BLM bonding would be required. States would set, hold, and administer any financial guarantees under state regulations. Existing reclamation bonds filed with BLM would either be returned to operators or transferred to the states.

Inspection and Monitoring

States would conduct inspection and monitoring programs for compliance with state regulations. BLM could inspect sites to verify that lands are not undergoing unnecessary or undue degradation.

Penalties for Noncompliance

States would use their own enforcement and penalty programs for noncompliance. BLM would take no more enforcement action. Other agencies (Environmental Protection Agency, Fish and Wildlife Service) could still issue citations for violation of environmental laws under their statutory authorities.

Appeals Process

Alternative 2 would have no appeals process on project approvals or enforcement through BLM

because a federal action would not normally be involved. Should BLM act under other regulations such as for rights-of-way, the decision could be appealed as provided by regulations.

Alternative 3: Proposed Regulations (Proposed Action and Preferred Alternative)

The proposed regulations would replace the existing regulations at 43 CFR 3809. This alternative constitutes BLM's preferred alternative. The regulations have been changed from those presented in the draft EIS in response to public comments and so as not to be inconsistent with the NRC (1999) report.

Unnecessary or Undue Degradation Definition

The proposed regulations would change the existing definition of unnecessary or undue degradation. The regulations would replace the "prudent operator" standard in the existing regulations with the requirement to comply with the following:

- Performance standards of the proposed regulations.
- Terms and conditions of approved Plans of Operations or Notices.
- Other federal or state laws for environmental protection.

The proposed definition also incorporates the Surface Use Act (PL 69-167) requirement that activities be reasonably incident to prospecting, mining, or processing. The definition would retain the current requirement that operations attain the stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area, wild and scenic rivers, wilderness areas, national monuments, or national conservation areas.

The definition of *unnecessary or undue degradation* has been changed in the final proposed regulations to include: "...conditions, activities, or practices that...result in substantial irreparable harm to significant scientific, cultural, or environmental resource values of the public lands that cannot be effectively mitigated." This definition means that operations would not be allowed where significant resources would incur substantial irreparable harm that could not be mitigated. Although BLM intends that a denial based upon this aspect of the definition would rarely be invoked, BLM would review all operations for such potential impacts.

Examples of where this requirement *may* apply include the following:

- Disturbance of American Indian sacred sites.
- Activity that would affect proposed species to the point they would become listed as threatened or endangered.
- Mining that removes critical water supply aquifers.
- Disturbance of extremely acid generating material that could not be effectively controlled.

This is not an exhaustive list but gives examples of where the resources are significant and the impact would be so great as to constitute unnecessary or undue degradation under the proposed definition.

Project Area Definition

The proposed regulations would change the definition of the project area to account for the possibility that mining claims in a project area might be held by more than one owner. All access and support facilities are still included in the definition.

Public Lands Definition

The scope of the proposed regulations and the definition of public lands would expand the category of lands on which the 3809 regulations would apply. The proposal is to include split-estate lands patented under the Stock Raising Homestead Act, where the surface is private but the mineral estate is reserved to the United States and open to operations under the Mining Law.

The proposed regulations would also apply to lands where the surface has been sold or exchanged but the minerals have been reserved to the United States. On these lands the minerals are now segregated from location under the Mining Law until the Secretary of the Interior issues regulations. The proposed final regulations would be the regulations needed before these lands could be open to operation under the Mining Law. But adopting the proposed regulations would not result in a wholesale opening of all these reserved minerals. The regulations are written to require land use planning decisions and environmental analysis before BLM decides to open tracts to operation under the Mining Law.

Disturbance Categories and Thresholds

Casual Use. The proposed regulations retain the category of casual use for activities that involve collecting geochemical, rock, soil, or mineral samples using hand tools, hand panning, and nonmotorized sluicing. Casual use would not include the use of mechanized earth-moving equipment, truck-mounted drilling equipment, chemicals, explosives, or motorized vehicles in areas closed to off-road vehicles.

The proposed definition of casual use would allow some small suction dredging but would exclude operations whose cumulative effects would result in more than negligible disturbance. The BLM state director may establish areas where people or groups wishing to engage in casual use activities must inform BLM in advance so BLM can determine if a Notice or Plan of Operations is required because of the potential for cumulative effects to exceed negligible disturbance.

Suction dredge operators may be required to contact BLM to determine if the proposed activity may proceed as casual use, or if a Notice or Plan of Operations will be required. The suction dredge operator would not be required to contact BLM if (1) the state requires an authorization for suction dredging and (2) BLM and the state have an agreement under proposed 3809.200 for BLM to accept state authorizations for purposes of regulating suction dredging on BLM-

administered lands.

Notices. The proposed regulations would allow only exploration operations to file Notices. This provision changes the existing regulations, which allow an operator to file a Notice if less than 5 acres is disturbed and the site disturbed is not in a special status area. This change was made so that the regulations would not be inconsistent with the NRC (1999) recommendations.

Plans of Operations. The final regulations were changed so as to not be inconsistent with the NRC recommendations. The Plans of Operations threshold would require Plans of Operations for any mining regardless of size and for any exploration involving bulk sampling of more than 1,000 tons. This limit replaces the existing threshold that requires Plans of Operations for more than 5 acres of disturbance.

In addition, the proposed regulations would expand the types of special status lands–where Plans of Operations would be required for any disturbance exceeding casual use, including exploration. Two new types of public land areas would be added as listed under the regulations at 3809.11(c): any lands or waters known to contain federally proposed or listed threatened or endangered species or their habitat, and national monuments and national conservation areas. In addition, Plans of Operations would be required for activity on private surface over reserved federal minerals where operators do not have the consent of surface owners.

Claim Validity and Valid Existing Rights

The proposed regulations require validity exams to determine valid existing rights before BLM approves a Plan of Operations or allows Notice-level operations to proceed in areas withdrawn from the operation of the mining laws. On segregated lands, such as those to be exchanged, sold, or selected by a state, BLM may require a validity exam to determine valid existing rights before BLM approves a Plan of Operations or allows Notice-level operations to proceed in these areas. This change would incorporate in the regulations what had previously been within BLM's discretion.

Common Variety Minerals

The proposed regulations incorporate a process that has been in general practice for minerals that are under dispute as to being locatable under the Mining Law or of common variety and therefore saleable and subject to sale for fair market value. The proposed regulations would allow mining of the material under a Plan of Operations subject to the operator's placing potential fair market value in escrow pending the outcome of a common varieties determination by BLM.

The proposed regulations would also allow BLM to sell mineral materials from an unpatented mining claim with the written consent of the claimant.

State-Federal Coordination

The proposed regulations would enable the establishing of two types of agreements between BLM and the state: (1) an agreement that allows joint administration of the regulatory program or (2) an agreement where BLM defers to state administration some or all of the program. An important provision of the proposed regulations is that if BLM determines that the state program is adequate to meet the BLM equivalent, then BLM *must* give the state the lead for regulation if the state requests the lead.

Even with a complete deferral to state regulation, the proposed regulations would require BLM to retain the following:

- Concurrence on approval of Plans of Operations.
- Analysis responsibilities under the National Environmental Policy Act.
- Concurrence in the approval and release of any financial guarantee.
- Consultation and coordination duties for compliance with the National Historic Preservation Act and the Endangered Species Act.
- Responsibility for any government-to-government consultation with American Indian tribes.

BLM would also retain the option to conduct inspections and take enforcement actions.

Regardless of the cooperative agreement in place, BLM would always retain responsibility for land use planning for BLM-managed lands. The state could not restrict land use on BLM-managed lands, only regulate the activity authorized by the public land laws.

Existing Operations

The proposed regulations, if adopted, would be applied to existing or pending Notices and Plans of Operations as follows:

Existing Notices would expire after 2 years. Operators choosing to continue operations beyond the 2-year period would have to extend their Notices by providing an acceptable financial guarantee. Notices for mining would not be required to refile as a Plan of Operations if the disturbance area does not increase.

Any approved Plans of Operations existing on the effective date of the regulations could continue as originally approved for Plan content and performance. Plans of Operations, or Plan modifications, pending before BLM on the effective date of the regulations would not have to meet the new Plan content, new performance standards, or new definition of unnecessary or undue degradation.

Other aspects of the proposed regulations such as enforcement provisions and bonding would

apply to all Plans of Operations. Existing operations would have to give the required financial guarantee within 180 days of the effective date of the regulations if their present financial guarantees do not meet the requirements of the final regulations.

New mine facilities added to existing Plans of Operations would be required to comply with the new regulations. Modifications to mine facilities originally approved under the existing regulations would be required to comply with the new Plan content and performance standards unless the operator shows that compliance is not practical for economic, environmental, safety, or technical reasons.

Notice and Plan of Operations Content and Processing

Notices. The proposed regulations would make it explicit that the 15-day time for BLM to review a Notice does not begin until BLM receives a "complete" Notice. The proposed regulations would retain the 15 calendar day review time frame, instead of the initially proposed 15 work days because Notices could be used only for exploration. This amount of time would generally be enough for BLM to conduct the review of exploration operations. But if conditions warrant, the regulations would allow 15 more days of review and an opportunity for BLM to conduct a site visit, before completing its review of the Notice.

The proposed regulations contain more detail on the contents of a Notice. But operators are already providing most of this information in Notices under the existing regulations. One addition is the requirement to give a reclamation cost estimate. The proposed regulations contain a new requirement that all Notice-level operations must give a financial guarantee to ensure performance of reclamation (see section on financial guarantees) and that the operator must prepare the initial reclamation cost estimate.

BLM would not approve a Notice but would review it for adequacy in preventing unnecessary or undue degradation.

Plans of Operations. The proposed regulations would require Plans of Operations to contain information on the operator; a description of the operation; and the operation's reclamation, monitoring, and interim management plans. These requirements mostly formalize existing practices. The proposed regulations would further require operators to supply baseline environmental data on a site-specific basis as specified by BLM. Such data is not required under the existing regulations, but many larger operations have routinely given it to facilitate National Environmental Policy Act (NEPA) compliance.

Operators would be required to give BLM an initial reclamation cost estimate. BLM would review the estimate and either request more information or notify the operator of the final amount for which financial assurance must be provided.

The proposed regulations would specify that operators submit a complete proposed Plan of Operations. The Plan must describe the operation in enough detail for BLM to complete its review and determine if the Plan would be adequate to prevent unnecessary or undue degradation.

The final regulations would require that all Plans of Operations be released for at least a 30-day public comment period. This comment period would generally be the same as the comment period for the environmental analysis prepared under NEPA.

The regulations would also specify that BLM could disapprove or withhold approval of a Plan of Operations if it does not meet content requirements. BLM could disapprove a Plan of Operations that proposes operations in an area closed to the Mining Law, or if the operation would result in unnecessary or undue degradation. If it disapproves a Plan of Operations because it would result in substantial irreparable harm to significant resources, BLM must include written findings stating how each element is exceeded and therefore warrants Plan disapproval.

Modifications

The proposed regulations would allow BLM to require modification where needed to prevent unnecessary or undue degradation and before mine closure to address unexpected events or conditions. This provision changes the existing regulations, which allow BLM to require a modification only if the state director determines that the circumstances warranting modification were unforeseen during initial Plan approval.

Temporary or Permanent Closure

The proposed regulations establish criteria for temporary and permanent closure, requiring operators to file interim management plans as part of their Plans of Operations. Operators are then required to do the following:

- Follow this plan if they stop conducting operations.
- Take all needed action to prevent unnecessary or undue degradation.
- Maintain an adequate financial guarantee.

After 5 consecutive years of inactivity BLM will review an operation and may terminate the Plan of Operations if it finds the operation to be abandoned. BLM will then direct final reclamation and closure.

Performance Standards

General. The proposed regulations contain mainly outcome-based performance standards. Instead of specifying a particular design, these standards describe the resource condition that must be achieved or the performance a particular operating component must meet. The proposed

regulations require that the operator use equipment, devices, and practices that will meet the performance standards.

The proposed regulations also contain a performance standard that requires the operator to follow a reasonable and customary sequence of operations. This means that certain types of disturbance, such as mining, should be preceded by exploration in order to establish that the mining disturbance is necessary. This requirement is not specified in the existing regulations but is implied under the term *unnecessary or undue degradation.*

Land Use Plans. The proposed regulations require operations and postmining land use to comply with land use plans. This requirement also recognizes that the land use plans must not impair the rights of claimants under the Mining Law. BLM cannot use land use plans by themselves to preclude mineral activity, but should use them for guidance on regulating the activity. This performance standard is not intended to replace the withdrawal process for removing lands from operation of the Mining Law.

Surface and Ground Water Protection. All operations would have to comply with state and federal laws and regulations protecting water quality and quantity. The proposed regulations would require that the water quality of a mine pit not endanger wildlife, public water supplies, or users.

For water pollution and dewatering, the proposed regulations would require that operation and reclamation minimize water pollution and changes in flow in preference to water treatment or replacement. Specifying a preferred approach, this standard is an exception to the general statement that the performance standards under Alternative 3 are outcome based.

The proposed regulations contain requirements for exploration drilling and drill hole plugging. Drill cuttings and mud would have to be contained onsite. All exploration drill holes would have to be plugged to prevent the following:

- Mixing of waters from aquifers.
- Adverse impacts to beneficial uses.
- Downward water loss.
- Upward water loss from artesian conditions.

The surface would have to be plugged to prevent the direct inflow of surface water into the borehole and to eliminate the open hole as a hazard.

Wetlands and Riparian Area Protection. Both the existing and proposed regulations require that operators obtain state and federal permits for dredging or filling in waters of the state or the United States. Included are the Section 404 permits under the Clean Water Act issued by the U.S. Army Corps of Engineers (COE) with certification by the state water quality agency. No COE permits are required for riparian areas that do not fall within the ordinary high water mark and therefore are not COE jurisdictional waters.

The proposed regulations would build on the current Clean Water Act permitting requirement by specifying a site-selection hierarchy for both wetlands and riparian areas. The proposed regulations would require that disturbance either (1) avoid wetland and riparian areas or (2) minimize impacts to wetlands and riparian areas and mitigate damage to wetland and riparian areas through measures such as restoration or offsite replacement.

Soil or Growth Media Handling. The proposed regulations would require that topsoil or other growth media be removed from the lands disturbed by operations and segregated and preserved for later use in revegetation during reclamation. Where feasible, the proposed regulations would direct transport of topsoil from the salvage site to use in reclamation to preserve more of the soil's fertility.

Revegetation Requirements. The proposed regulations would require that all disturbed lands be revegetated to establish a stable and long-lasting vegetation cover that is self-sustaining and comparable in both diversity and density to preexisting natural vegetation. Native species would be used to the extent feasible, and disturbed land would be revegetated according to the schedule in the reclamation plan. The proposed regulations would also require operations to be managed to prevent the introducing of noxious weeds and to control existing infestations.

Fish, Wildlife, and Plant Protection and Habitat Restoration. The requirements from the existing regulations would be carried forward to the proposed regulations. Operators would have to prevent harm to threatened or endangered species and their habitats. Fisheries and wildlife habitat disturbed would have to be rehabilitated as part of reclamation.

The proposed regulations would also require operators to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values. All processing solutions, reagents, or mine drainage that might be toxic to wildlife would have to be fenced or netted to prevent wildlife access. Previously, fencing and netting had been required by policy and incorporated during project-specific reviews.

Protecting Cultural Resources. Section 106 of the National Historic Preservation Act would continue to be used to develop mitigation for historic properties found before a Plan of Operations is approved. The proposed regulations would also require that operators not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object discovered during operations. These discoveries would be left intact, and the operator would immediately notify BLM of the discovery so that BLM could decide on proper means of data recovery or salvage.

The proposed regulations would require operations to cease for 30 days to allow for data recovery of discovered cultural resources. This period is an increase over the existing requirement of 10 business days. The proposed regulations would also allow BLM to determine who bears the cost of recovery instead of assuming that the government would pay the cost.

Protecting Paleontological Resources. The proposed regulations for protecting paleontological

resources would be similar to regulations for cultural resources except no formal consultation process would be required like that under the National Historic Preservation Act (NHPA). The proposed regulations would require operations to cease for 20 business days to allow data recovery of discovered paleontological resources. This period is an increase over the existing requirement of 10 business days. The proposed regulations would also allow BLM to determine who bears the cost of recovery instead of assuming that the government would pay the cost. If BLM were to incur such costs, the proposal could allow BLM to then recover these costs from the operator, according to Section 304(b) of the Federal Land Policy and Management Act.

Protecting Cave Resources. The proposed regulations would add a new requirement to protect cave resources through identification and mitigation plans before disturbance. Should cave resources be discovered, the proposed regulations would require operations to stop for 20 business days to protect or preserve the resource. BLM would determine who bears the cost of cave protection.

Protecting American Indian Traditional Cultural Values, Practices, and Resources. The proposed regulations do not specify performance standards for these resources. The existing process of consultation and mitigation described for Alternative 1 would continue to be used to develop mitigation.

Some special status areas are expected to be designated because of the presence of American Indian traditional cultural values, practices, and resources. This designation would require exploration operations to file Plans of Operations, providing for increased consultation and mitigation development.

Roads and Structures. The proposed regulations would require that

- Access roads minimize surface disturbance.
- Existing access be used where practical.
- Safe design be maintained.
- Natural contours be followed.
- Cuts and fills be minimized.

All structures would be built and maintained according to state and local codes. Structures for use or occupancy are addressed in separate rules at 43 CFR 3715.

Handling of Potentially Acid-Forming, Toxic, or Other Deleterious Materials. The proposed regulations would incorporate guidance from BLM's acid rock drainage policy and current practices used by most field offices.

The proposed regulations require the use of static or kinetic testing of material to be mined to determine and guide the handling and placement of potentially acid-forming materials. The proposed regulations also require that management of this material be fully integrated with

operational procedures, facility design, and environmental monitoring programs throughout the project life.

The proposed regulations establish a hierarchy for control and mitigation of potential impacts of the mining of these materials. Acid rock drainage (ARD) control would focus on prevention or control of the oxidation of acid-forming minerals. If the formation of ARD cannot be prevented, potential migration of ARD must be prevented or controlled. Capture and treatment of ARD, or other undesirable effluent, to the applicable standard are required if source and migration controls do not prove effective. Long-term effluent capture and treatment would not replace the need for source control and could be relied upon only after source control methods have been employed.

Leaching and Processing Operations and Impoundments. The proposed regulations incorporate current practices in use by most field offices and the requirements from BLM's cyanide management policy. These requirements would apply to mines that use cyanide or other leaching agents.

The proposed regulations would require cyanide facilities to be able to contain, at the least, the greatest operating water inventory in addition to the 100-year, 24-hour storm event, including snowmelt events and expected draindown from heaps during power outages. This is a slight change from the existing cyanide management policy, which states that facilities must either contain the 100-year, 24-hour storm, or meet minimum state requirements.

The proposed regulations would require the building of secondary containment systems around vats, tanks, or recovery circuits adequate to prevent the release of toxic solutions in a primary containment failure.

The proposed regulations would require monitoring to detect any leakage from heaps, tailing impoundments, and other solution containment structures. As part of reclamation, upon release to the environment or during temporary closure, cyanide solutions and heaps would have to be neutralized or detoxified to the levels specified in the approved Plan of Operations.

The proposed regulations would require operators to take measures to prevent wildlife mortalities. All areas with exposed cyanide solution, including heaps, would be fenced and covered to prevent access by the public, wildlife, and livestock. Detoxification of exposed solutions might be used in lieu of fencing tailings impoundments.

Stability, Grading, and Erosion Control. The proposed regulations would specify that erosion must be minimized during all phases of operations. All disturbed areas would have to be graded or otherwise engineered to a stable condition to minimize erosion and facilitate revegetation. All areas would be recontoured to blend in with the premining natural topography to the extent feasible.

Waste Rock, Tailings, and Leach Pads. The proposed regulations require that these facilities be located, designed, built, operated, and reclaimed to minimize contamination of surface and

ground water, achieve stability, and to the extent economically and technically feasible, blend with the premining topography. These general requirements would be applied to the individual project to develop specific operating plans.

Pit Backfilling and Reclamation. The proposed regulations would defer determining the amount of backfilling required to a site-specific analysis prepared during review of the Plan of Operations. BLM would use information from the operator to consider economic, environmental, and safety factors in establishing the amount of backfilling, if any, required. Mitigation would be required for pit areas that are not backfilled.

The economic feasibility determination expected under the proposed pit backfilling requirement would not be a detailed review of the project economics, such as rate of return on investment. BLM does not intend to determine what is a reasonable profit margin for mine operators. That an operator could completely backfill a pit and still show a profit does not automatically mean BLM would require backfilling. Nor would an operation that appears to be uneconomic, even without any backfilling, be exempt from backfilling. When considering the economic feasibility of pit backfilling, BLM would weigh the expected environmental benefits in relation to such operational economic factors as the following:

- Whether the project is a single or multiple pit operation.
- Distance and grade from mine site to waste rock storage versus backfill location.
- Direct haul cost versus temporary storage and rehandling cost.
- Reclamation costs as a function of the size of the disturbance area.

The proposed regulations require mitigation for pit areas that are not backfilled. The type of mitigation expected is not a dollar-for-dollar cost compensation (i.e. for every $1 of backfill cost saved $1 must be spent on mitigation) or necessarily an acre-for-acre compensation (i.e. for every acre of unreclaimed pit an acre must be provided as mitigation). Instead, the intent of the mitigation requirement is to ensure that the impacts of not backfilling pit areas are mitigated.

For example, if leaving a pit highwall creates a safety hazard, required mitigation might include erecting perimeter fencing and posting hazard signs. If the pit area is in critical wildlife habitat that cannot be restored unless backfilled, then the mitigation might require providing replacement habitat at another location.

The existing regulations allow areas to remain unreclaimed to preserve evidence of mineralization. The proposed regulations would also allow disturbed areas to remain unreclaimed for the same reason, but only temporarily. Operators would eventually have to reclaim all areas for which they are responsible. Any areas left temporarily open to establish mineralization must be described in the reclamation plan along with a time frame for completing final reclamation.

Financial Guarantees (Bonding)

The proposed regulations would require reclamation bonding for all Notice- and Plan-level

operations. This is a major change from the existing regulations, which do not require Notice-level operations to give financial assurance. The financial guarantee (reclamation bond) would have to cover 100% of the estimated cost for BLM to perform the reclamation according to the reclamation plan. Corporate guarantees would no longer be acceptable as financial assurance for reclamation performance.

The proposed regulations would allow equivalent bonding by state agencies but only if the bonding instrument is also redeemable by the Secretary of the Interior. State bond pools would also be allowed if the BLM state director determines that the state bond pool gives a level of protection equivalent to BLM requirements. BLM would notify the public and allow it to comment before final bond release. The proposed regulations would also specify setting up trust funds or other funding mechanisms for post-reclamation treatment or maintenance.

Inspection and Monitoring

Operators would have to allow BLM to inspect operations to determine compliance with the proposed regulations. The current policy is to inspect operations four times annually where cyanide is used or a significant potential exists for acid rock drainage. This policy would be adopted into the proposed regulations. The proposed regulations would also allow citizens under certain circumstances to annually tour mining operations upon prior request. BLM will be responsible for arranging the tour with the operator.

Environmental monitoring programs would continue to be developed during the review of Plans of Operations. The operator would conduct environmental testing (water, air, soil, etc.) according to an approved monitoring plan. BLM could take samples during inspections to verify the monitoring program results.

Penalties for Noncompliance

The proposed regulations would allow BLM to issue enforcement orders for failure to comply with the Notice or Plan or the regulations. Two types of enforcement orders could be issued: the noncompliance order and the suspension order. BLM would issue temporary immediate suspensions to operators who fail to comply with a noncompliance order if needed to protect health, safety, or the environment from imminent danger or harm. The orders would specify the following:

- How the operation is not complying with the regulations.
- The portion of operations that must cease or be suspended.
- The actions that must be taken to correct the noncompliance.
- The time by which corrective actions must be taken and completed.

BLM could revoke a Plan or nullify a Notice upon finding that the operator has failed to correct violations within the specified time.

The proposed regulations would give BLM the discretion to issue civil penalties of up to $5,000/day for violation of the regulations or failure for comply with an enforcement order. The operator could request a hearing with the Department of the Interior, Office of Hearings and Appeals on the amount of the civil penalty or enter into settlement discussions with BLM.

Appeals Process

The proposed regulations would provide the same appeals process for both the operator and third parties. All parties could appeal to the BLM state director and thereafter to the Interior Board of Land Appeals (IBLA) on any decision by which they are adversely affected. The state directors could decline to review the decision, in which case the next level of appeal would be to IBLA. All decisions would remain in *full force and effect* while under appeal unless a written request for a stay is granted by the reviewing entity.

Alternative 4: Maximum Protection

Under Alternative 4 the 3809 regulations would contain prescriptive design requirements for resource protection. These requirements would increase the level of environmental protection and give BLM more discretion in determining the acceptability of proposed operations. Provisions of Alternative 4 are summarized in Table 2-1. Major changes from the current regulations include the following:

- Expanded application to public lands with any mineral or surface interest.
- Numerical performance standards for mineral operations.
- Required pit backfilling.
- Elimination of Notices so that all disturbances greater than casual use require Plans of Operations.
- Required conformance with land use plans.
- Prohibitions against causing irreparable harm or having to permanently treat water.

Unnecessary or Undue Degradation Definition

Alternative 4 would change the definition of unnecessary or undue degradation to require a greater level of resource protection and impose a design-oriented regulatory program. *Unnecessary or undue degradation* would be defined to mean that operations could not irreparably harm resources and that the operator would have to use best available technology and practices as environmental controls.

Project Area Definition

The project area would include the same activities as under the existing regulations. The area's boundary would have to be defined either by legal description or a metes and bounds survey and approved by BLM. Lands could lie within only one project area at a time to prevent confusion over operators and their reclamation liabilities.

Public Lands Definition

The definition of public lands on which the regulations apply would be expanded to include all lands whose mineral estate is federal and surface is private or state owned. The definition would also include lands where BLM manages the surface but the mineral estate is private or state owned. Surface owner consent would be required before BLM would approve operations on non-BLM managed surface.

Disturbance Categories and Thresholds

Casual Use. For all activity other than claim staking and surface sampling the operator would have to consult with BLM to determine if the activity is casual use or if a Plan of Operations is required. Some activities now regarded as casual use, such as hand digging, geochemical or

geophysical exploration, and small-scale suction dredging, would require an approved Plan of Operations before the surface could be disturbed.

Notices. The regulations under Alternative 4 would not contain a Notice provision. All types of activity now conducted under a Notice would require an approved Plan of Operations before the land could be disturbed.

Plans of Operations. All disturbance greater than casual use would require a Plan of Operations. A Plan of Operations might be required for activity as slight as obtaining small surface samples with hand tools. But the content and processing requirements for Plans would vary greatly, depending on the size of the proposed activity.

Claim Validity and Valid Existing Rights

All Plans of Operations proposing mining would require an economic feasibility study. This requirement would apply to all lands that are subject to mining claims with valid existing rights, not just those that have been segregated or withdrawn. To justify the potential environmental impacts, the feasibility study would be used to determine whether the proposed operation is feasible both technically and economically. BLM would not approve any Plans of Operations that are not economically feasible. Plans of Operations proposing exploration would not have to be supported by an economical feasibility determination because the purpose of exploration is to obtain data for evaluating feasibility.

Common Variety Minerals

Mining of material thought potentially to be of common variety, and therefore not locatable under the Mining Law, would not be allowed under the 3809 regulations. Common variety determinations would have to be made and the material would have to be classified as a locatable mineral before BLM would approve Plans of Operations. The regulations would not provide for the use of an escrow account pending the outcome of the common variety determination as is currently the practice.

State-Federal Coordination

The regulations would not allow states to play the lead role for any element of the surface management program on BLM lands. Rather, the regulations would provide for BLM to coordinate and work cooperatively with the states so that operations meet the requirements of both state and federal regulations. Conditions would be placed on operations so that the most protective environmental requirement would apply. Should an operation be unable to comply with both BLM and state regulations, it would have to meet BLM requirements.

Existing Operations

Under Alternative 4 all existing Notices would expire in 2 years. The disturbance would have to

be reclaimed within 2 more years, or the Notice would have to be replaced by a Plan of Operations. Any existing or pending Plans of Operations would be required to comply with the new regulations in the following manner:

(1) Within 180 days the operator would have to file a modified Plan of Operations describing how the requirements of the new regulations would be met.

(2) BLM would determine the adequacy of the modification in meeting the new requirements and might grant exceptions from requirements for economic, environmental, safety, or technical reasons.

(3) Any new facilities added to an existing Plans of Operations would have to comply with the regulations unless the operator can show that compliance is not feasible for environmental, safety, or technical reasons.

(4) Modifications made to existing mine facilities would have to comply with the regulations unless compliance is shown not to be feasible for environmental, safety, or technical reasons (no economic exemptions).

Plan of Operations Content and Processing

Because Alternative 4 would not have a Notice provision, all activity greater than casual use would require a Plan of Operations. The content and processing of the Plan would generally be the same as that described for Alternative 3. But certain performance standards, such as the requirements to prevent irreparable harm, prohibit permanent water treatment, and complete mine pit backfilling, would make Plan approval less certain.

Modifications

The same modification process would be followed as described for Alternative 3. BLM may require the operator to modify the Plan of Operations to prevent unnecessary or undue degradation. Plan modifications would be required at final closure to address unanticipated conditions or new information. All Plans must be renewed every 5 years.

Temporary or Permanent Closure

Temporary or permanent closure would be the same as under Alternative 3. Operators would have to file and follow interim management plans. Plans that are not renewed, or are determined to be abandoned, might be terminated and final reclamation directed.

Performance Standards

General. The regulations would specify the minimum national design standards for exploration, mining, and reclamation and mandate that activities not cause irreparable harm. Irreparable harm

would mean to permanently impair the productivity of the land.

Land Use Plans. The regulations would require that all operations be conducted according to the approved BLM land use plans in areas open to mineral activity under the Mining Law. But land use plans could not be used in place of segregations and withdrawals. Land use plans would be used to help determine sensitive areas and to define what would constitute irreparable harm to these resources.

Surface and Ground Water Protection. The water quality in mine pit lakes could not exceed the acute toxicity standard for metals so as not to endanger wildlife, public water supplies, or users. The regulations would require that operators not rely on water treatment to meet the water quality standards for more than 20 years after closure. The operator would be required to show that, after closure, the operation could comply with the water quality standards through source controls after 20 years. BLM would not approve Plans of Operations that could not demonstrate compliance with this standard.

The regulations would require the operator to restore the hydrologic balance of surface and ground water upon reclamation. Water could be pumped or transported to restore the hydrological balance but not for longer than 20 years after mine closure. BLM would not approve Plans that could not demonstrate compliance with this standard.

The regulations would specify minimum design standards for drilling and plugging exploration drill holes. All drill cuttings and mud would have to be contained onsite using sumps or portable tanks. All exploration drill holes would have to be plugged from bottom to no more than 10 feet of the surface with bentonite or a similar compound to prevent mixing of waters from aquifers, impacts to beneficial uses, downward water loss, or upward water loss from artesian conditions. The upper 10 feet would have to be plugged with cement.

Wetlands and Riparian Area Protection. Specific site selection and mitigation criteria would require operators to do the following:

- Avoid locating operations in wetland and riparian areas where possible.
- Minimize impacts to wetlands and riparian areas.
- Mitigate damage to wetland and riparian areas by restoring them to proper functioning condition within 10 years after operations close or by using offsite replacement at a ratio of at least 1.5 acres for every acre disturbed.

Soil or Growth Media Handling. Soil or other growth media would be removed from the lands disturbed by operations, segregated by soil horizon, and preserved for later use in revegetation during reclamation.

Revegetation Requirements. All disturbed lands would have to be revegetated according to the schedule in the reclamation plan to establish a stable, long-lasting, and self-sustaining vegetation cover. Canopy cover would have to consist of at least 90% of adjacent undisturbed lands with

similar elevation, slope, and aspect at the same time of year. Only native species could be used. Operations, including revegetation, would have to prevent the introducing of noxious weeds or eliminate any existing infestations.

Fish and Wildlife Protection and Habitat Restoration. Within 10 years of closure the operator would have to minimize disturbance and restore any disturbed habitat to proper functioning premining condition.

Special status species would be protected the same as threatened and endangered species. Mineral operations could not affect special status species, causing them to be listed as threatened or endangered.

Protecting Cultural Resources. The regulations would not limit the time for data recovery of significant cultural resources and would require that the operator bear the cost of recovery.

Protecting Paleontological Resources. The regulations would not limit the time for data recovery of significant paleontological resources and would require that the operator bear the cost of recovery.

Protecting Cave Resources. The regulations would not limit the time for data recovery of significant cave resources and would require that the operator bear the cost of recovery.

Protecting American Indian Traditional Cultural Values, Practices, and Resources. Special status areas, designated through land use planning as containing American Indian traditional cultural resources, would require concurrence by affected American Indians before BLM would approve a Plan of Operations.

Roads and Structures. Roads built for access, haulage, service, or exploration could not have maximum sustained grades greater than 10%. Short pitches of less than 300 feet might be used to take advantage of topography, but the grade could not exceed 12%. Diagonal drainage barriers would be placed as follows:

Grade %	**Max. Spacing (ft)**
0 - 2	200
3 - 8	150
9 -12	80

All roads would be reclaimed to approximate original contours. All structures would be built and operated according to codes and removed at the end of operations

Handling of Potentially Acid-Forming, Toxic, or Other Deleterious Materials. Alternative 4 would have the same provisions as Alternative 3 with more design specifics and unsuitability criteria. BLM could set criteria to determine if certain deposits are unsuitable for mining because of their acid-forming and acid-neutralizing mineral content, climate, and control technologies.

Materials exceeding these criteria could not be mined. Potentially toxic mine wastes (e.g. pond sludge and lab wastes) could not be disposed of on BLM-managed lands. And plans proposing treatment periods longer than 20 years to meet standards would not be acceptable and would be denied.

Leaching and Processing Operations and Impoundments. The Alternative 4 regulations would contain the same elements as described for Alternative 3, but with more design specifics. Processing facilities that use cyanide would have to be able to contain, at the least, the greatest operating water balance in addition to the probable maximum precipitation event, including snowmelt events and expected draindown from heaps during power outages. Secondary containment systems would have to be built around vats, tanks, or recovery circuits adequate to contain 110% of the maximum contents in the event of primary containment failure.

All leach pad liner systems would have to employ at least two synthetic liners, with a drain layer to reduce the hydrostatic head, over at least 24 inches of compacted clay. Each synthetic liner would have to be at least 40 mils thick. The clay liner would have to be compacted to a permeability of less than $1x10^{-7}$ cm/sec. Leak detection and recovery systems would be required for heaps and other solution containment structures.

The ore heap and leach pad would have to be stable throughout construction and operation. A minimum factor of safety of 1.3 would be required under operating conditions.

Heaps, tailings, or other cyanidated material would have to be detoxified at closure (or during periods of prolonged inactivity) to effluent levels of less than 0.2 mg/l weak acid dissociable cyanide, pH between 6.0 and 8.5, and metal levels less than the maximum contaminant level. Postclosure discharges would have to achieve levels acceptable to the state and the U.S. Environmental Protection Agency.

Stability, Grading, and Erosion Control. Erosion would have to be controlled so that soil loss would not exceed 2 tons/acre/year. All excavations (roadcuts, drillsites, etc.) would have to be recontoured approximately to the original contour. Recontoured waste rock and spent ore would be graded to no steeper than 3h:1v.

Pit Backfilling and Reclamation. The regulations would exempt operations from backfilling only where backfilling is determined to be environmentally unsound or unsafe.

Financial Guarantees (Bonding)

Reclamation bonding requirements would be the same as described for Alternative 3. In addition, bond coverage would be expanded to include unplanned events such as spills or facility failures.

Inspection and Monitoring

BLM would be required to inspect all operations at least four times a year. Operators would be

required to hire independent third parties to conduct environmental monitoring. BLM would be required to take samples during inspections to verify the results of the monitoring program.

Penalties for Noncompliance

The penalty system for noncompliance would be the same as under Alternative 3 except enforcement orders and penalties would be mandatory and have to be issued for any observed noncompliance. Operators with unresolved noncompliances could have future permits blocked until the noncompliance is resolved.

Appeals Process

The appeals process would be the same as described for Alternative 3 except that all decisions would be *automatically stayed from effect* during consideration of the appeal unless a written request for implementation is granted by the relevant reviewing official (either the BLM state director or the Interior Board of Land Appeals).

Alternative 5: NRC Recommendations

Alternative 5 would change the existing regulations only where specifically recommended by the NRC (1999) report. BLM would not use other aspects of the NRC report to develop changes to the 3809 regulations as was done under Alternative 3.

Unnecessary or Undue Degradation Definition

Under Alternative 5 the definition of *unnecessary or undue degradation* would remain same as Alternative 1. The prudent operator standard would be retained, and operators would have to follow "usual, customary, and proficient" measures, mitigate impacts, comply with all environmental laws, perform reclamation, and not create a nuisance.

Project Area Definition

The definition of *project area* would also remain the same as under Alternative 1: a tract of land upon which operations are conducted. The project area would include the area required for building or maintenance of roads, transmission lines, pipelines, or other means of access. The project area could include one or more mining claims, but the claims would have to be under one ownership.

Federal Lands Definition

The definition of *federal lands* would remain the same as under Alternative 1. The lands where the regulations would apply would stay the same: BLM-administered lands subject to the Mining Law.

Disturbance Categories and Thresholds

Under Alternative 5 disturbance categories and thresholds would be the same as under Alternative 3, but Alternative 5 would probably not expand the types of special status lands were a Plan of Operations was always required for any surface disturbance exceeding casual use. The Notice-Plan threshold would be based on the division between exploration and mining. All mining, milling, and bulk sampling involving more than 1,000 tons, would require a Plan of Operations.

Exploration disturbing less than 5 acres could still be conducted under a Notice unless occurring on special status lands. Exploration on special status lands, or disturbing more than 5 acres would require a Plan of Operations. Special status areas would include areas of critical environmental concern (ACECs), the California Desert Conservation Area, wild and scenic rivers, wilderness areas, areas closed to off-road vehicles, and other formally designated areas.

Claim Validity and Valid Existing Rights

As under Alternative 1, BLM would have the option of determining valid existing rights before

approving Plans for operations in segregated or withdrawn areas.

Common Variety Minerals

As under Alternative 1, BLM under Alternative 5 would not change the way it handles common variety minerals. BLM policy provides for holding escrow during operations if materials to be mined may be of a common variety and subject to payment of fair market value.

State-Federal Coordination

State-federal coordination under Alternative 5 would remain the same as at present (Alternative 1.) Agreements in each state would provide for coordination for review, approval, bonding, monitoring, and enforcement action. States might have the lead for some program elements, but the most restrictive requirements (BLM or state) would apply. Agreements or memorandums of understanding (MOUs) would be developed or modified to give clear procedures for BLM to refer certain noncompliance actions to other federal and state agencies for enforcement.

Existing Operations

Existing operations under Alternative 5 would be the same as under Alternative 3 but would not include new performance standards. Existing Notices would expire after 2 years unless bonded and extended. Existing Notices for mining would not be required to refile as Plans of Operations if disturbance area does not increase.

Existing Plans, pending Plans or Plan modifications would be subject to the new regulations and would have to meet the new bonding requirements within 180 days of the new regulations becoming effective.

Modifications made to existing mine facilities after the effective date would have to comply with the new regulations unless shown not practical for economic, environmental, safety, or technical reasons.

Notice and Plan of Operations Content and Processing

As under Alternative 1, BLM would continue to be required to review Notices within 15 calendar days, and initially review Plans in 30 days with an option for 60 more days of review time. Time frames would be open-ended for Plans for EIS, National Historic Preservation Act, and threatened and endangered species compliance.

Public comment periods would be allowed for environmental assessments if BLM determines that there is substantial public interest.

Operators would provide Plan of Operations interim management plans for periods of temporary closure.

Modifications

As under Alternative 3, Alternative 5 would eliminate the requirement for BLM to demonstrate unforeseen issues that warrant modification and would allow BLM to require operators to modify Notices or Plans to prevent unnecessary or undue degradation. BLM could also require plan modifications at final closure to address unexpected conditions or new information.

Temporary or Permanent Closure

As under Alternative 3, operators would have to follow required interim management plans during periods of temporary closure for Plan-level operations. BLM might consider these operations abandoned, depending on length of inactivity and condition of equipment. After 5 consecutive years of inactivity, BLM might terminate the Plan of Operations and direct final reclamation.

Notices would expire after 2 years. BLM might consider the Notice-level operation abandoned and order final reclamation, depending on time and condition of site and equipment.

Once it determines that a Notice- or Plan-level operation is abandoned, BLM would begin forfeiture on the financial assurance and perform the required reclamation if the operator cannot or will not do so.

Performance Standards

General. As under Alternative 1, operators would be required to prevent unnecessary or undue degradation and follow requirements at 3809.1-3(d). Other site-specific performance requirements might be developed during individual project review.

Land Use Plans. As under Alternative 1, land use plans would continue to be used to give resource information and determine resources of special management concern when processing Notices or approving Plans of Operations.

Surface and Ground Water Protection. As under Alternative 1, all operators would have to comply with federal and state water quality standards. Project approvals would establish acceptable postclosure water quality conditions for pit lakes suitable for long-term use of the site and conditions needed to adequately protect ground and surface waters, wildlife, and waterfowl.

Wetlands and Riparian Area Protection. As under Alternative 1, state and 404 permits from the Army Corps of Engineers would have to be acquired for dredging or filling in U.S. waters. BLM would continue to emphasize riparian area management during project review without a specific performance standard.

Soil or Growth Media Handling. As under Alternative 1, where reasonably practicable, topsoil would have to be saved and reapplied to disturbed area after reshaping has been completed.

Revegetation Requirements. As under Alternative 1, Alternative 5 would require that disturbed areas be revegetated where reasonable and practicable and that revegetation provide a diverse vegetation cover. Revegetation would be a part of the requirement to rehabilitate wildlife habitat. The prohibition against the creation of a nuisance would be used to address noxious weed control.

Fish and Wildlife Protection and Habitat Restoration. Same as Alternative 1. The operator must take needed action to prevent harm to threatened and endangered species and their habitat that might be affected by operations. Reclamation must include rehabilitating fisheries and wildlife habitat.

Protecting Cultural Resources. As under Alternative 1, Alternative 5 would use the National Historic Preservation Act Section 106 process to develop mitigation for cultural resources found before Plan approval.

Operators could not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, object, or cultural site discovered during operations. Operators must immediately notify BLM of any cultural resources found during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove the discovery at the government's cost, after which operations may proceed.

Protecting Paleontological Resources. As under Alternative 1, operators under Alternative 5 could not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains.

Operators must immediately notify BLM of any paleontological resources discovered during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove the discoveries at the government's cost, after which operations may proceed.

Protecting Cave Resources. Like Alternative 1, Alternative 5 does not address the protection of cave resources. Such resources would be addressed on an individual basis when they are identified during project review.

Protecting American Indian Traditional Cultural Values, Practices, and Resources. Like Alternative 1, Alternative 5 does not specify the protection of these resources except when part of cultural resources under the National Historic Preservation Act. Consultation with American Indians would be used to develop mitigation on a case-by-case basis.

Roads and Structures. As under Alternative 1, operators in building roads and structures under Alternative 5 would be required to do the following:

- Minimize surface disturbance.
- Use existing access where practical.
- Maintain safe design.
- Follow natural contours.

- Minimize cuts and fills.

Operators would have to consult with BLM for roadcuts greater than 3 feet on the inside edge.

All structures would have to be built and maintained according to state and local codes. Structures are addressed in separate rules at 43 CFR 3715.

Handling of Potentially Acid-Forming Toxic or Other Deleterious Materials. As under Alternative 1, Alternative 5 would require that reclamation include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to the BLM acid rock drainage policy or other policies and handbooks

Leaching and Processing Operations and Impoundments. As under Alternative 1, Reclamation under Alternative 5 would have to include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to BLM policies (cyanide management policy, BLM state cyanide management plans, and acid rock drainage policy).

Stability, Grading, and Erosion Control. As under Alternative 1, reclamation would have to include measures to control erosion, landslides, and runoff.

Pit Backfilling and Reclamation. As under Alternative 1, the amount of pit backfilling under Alternative 5 would be determined on a case-by-case basis. Stable highwalls might remain where needed to preserve evidence of mineralization.

Financial Guarantees (Bonding)

As under Alternative 3, the regulations under Alternative 5 would require reclamation bonding for all Notice- and Plan-level operations. This is a major change from the existing regulations, which do not require Notice-level operations to give financial assurance. The reclamation bond would have to cover 100% of the estimated cost for BLM to perform the reclamation according to the reclamation plan. Corporate guarantees would no longer be acceptable as financial assurance for reclamation performance.

Alternative 5 would also allow equivalent bonding by state agencies but only if the bonding instrument is redeemable by the Secretary of the Interior. State bond pools would be allowed if the BLM state director determines that the state bond pool gives a level of protection equivalent to BLM requirements. BLM would notify the public and allow it to comment before final bond release. The proposed regulations would also specify setting up trust funds or other funding mechanisms for post-reclamation treatment or maintenance.

Inspection and Monitoring

As under Alternative 1, operators under Alternative 5 would have to allow BLM to inspect their

operations. Existing policy calls for inspections four times annually where cyanide is used or a significant potential exists for acid rock drainage, and twice annually for all other operations.

Monitoring programs would be developed during Plan review, and operators would conduct environmental testing (water, air, soil, etc.) and submit the results to BLM. BLM might take check samples during inspections.

Penalties for Noncompliance

As under Alternative 3, BLM under Alternative 5 would issue discretionary administrative penalties ($5,000/day), suspensions, revocation of Plan approval, and nullification of Notices for failure to comply with enforcement orders. BLM would refer certain noncompliance actions to other federal and state agencies for enforcement. Alternative 5 would have no additional provisions on criminal penalties. BLM would continue to use the current criminal penalties process.

Appeals Process

As under Alternative 1, BLM decisions under Alternative 5 would have to be appealed within 30 days. Operators would have to appeal to the BLM state director and then to the Interior Board of Land Appeals (IBLA). Third parties would appeal BLM decisions directly to IBLA. BLM's decisions would be in full force and effect during appeals unless IBLA grants a written request for a stay.

IMPLEMENTATION COSTS

The adequacy of BLM's funding and staffing was a concern voiced by many comments during scoping and on the draft EIS. Since we are required to analyze the environmental consequences of each alternative assuming full implementation, we have estimated the current surface management workload and expenditures, and expected funding requirements for the alternatives, including the No Action and Proposed Action alternatives.

Current Workload and Fiscal Resources

The BLM Management Information System tracks expenditures and accomplishments for most of BLM's major program areas, including its surface management responsibilities under the 3809 regulations. The accounting/budget system accounts for processing Notices and Plans of Operations, preparing National Environmental Policy Act documents, responding to appeals, inspecting mineral operations, and carrying out enforcement actions. For fiscal year 2000, we estimate that BLM will process 665 Notices and Plans of Operations at a cost of $15.5 million. By the end of the fiscal year we will make about 3,000 inspections, costing $4.7 million. In addition, some surface management responsibilities are carried out as part of our general land and resource management. But processing Notices and Plans and conducting inspections accounts for most of our surface management responsibilities and expenditures.

In general, the level of funding and staffing will not directly affect the number of Notices and Plans processed but may affect the timeliness of those reviews and approvals. The number of Notices and Plans ultimately processed is driven by the number that operators submit to BLM. By regulation, operators must notify BLM at least 15 days before beginning operations under Notices.

Within that 15-day period, BLM does not approve Notices but reviews proposals to ensure that unnecessary or undue degradation would not occur. Except for Notices that lack the information needed for the review, we generally process Notices within the 15-day period.

BLM must review and approve Plans of Operations within 30 days after they are filed. The current regulations allow 60 days for further review and site inspection, or more time to complete National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), or Endangered Species Act (ESA) requirements.

When an EIS is required or threatened and endangered species or cultural resources may be affected, the regulations do not specify a time frame for the approval process. For these more complex efforts, Plan of Operations approval takes at least a year and a half. Much of this protracted approval process is due to processing requirements, such as the NEPA, NHPA, ESA and Native American consultation. But current funding and staffing are also factors.

For simple projects that do not require EISs and are not expected to affect threatened and endangered species or cultural resources, BLM approves Plans of Operations within 2 to 6

months, depending on the office workload and the site specifics of the Plan. In these situations, delays beyond the time frame allowed by the regulations are mainly due to funding and staffing for processing Plans. Even though current funding and staffing for processing Notices and Plans may not be optimal, they are generally adequate.

The number of inspections conducted versus the number that are required by policy can be easily estimated and directly tied to funding and staffing allocated to that function. By policy, BLM is to carry out four inspections per year for operations that use leachate and at least one inspection per year for all other operations. On the basis of the existing policy on inspection frequency and data on currently active Notices and Plans of Operations, at least 7,000 inspections should be conducted this fiscal year versus the 3,000 inspections we expect to complete this fiscal year. We estimate that 7,000 inspections would cost $8.7 million, or about $4.0 million above the current expenditure level.

Alternative 1: Existing Regulations (No Action)

Overall activity levels in the form of new and amended Notices and Plans are expected to remain steady into the foreseeable future. For our analysis we assume that BLM will receive 600 Notice and 150 Plans per year for the foreseeable future. Under the No Action Alternative, full implementation would at a minimum require funding and staffing to meet all the processing and inspection needs discussed above. In addition, program funding and staffing needs to fully implement the existing regulations might increase in the future because of several factors:

- Inflation and cost of living adjustments.
- Increased regulatory attention given to technically complex or controversial projects.
- An increasing number of operations entering the closure phase and thereby requiring modifications to the Plans of Operations, new NEPA analysis, and intensive regulatory involvement.

One example of an emerging workload is bankruptcies. Nevada currently has 29 operations whose operators are in bankruptcy. These bankruptcies create a new complex workload in which BLM has little experience and the full impact on funding and staffing needs are still unknown. Overall we estimate that full implementation will require at least a 20% increase in the current expenditure level, or about $24.3 million.

Alternative 2: State Management

The cost for BLM to implement the regulatory program under Alternative 2 would be greatly reduced from the current and projected levels under the existing regulations (Alternative 1). BLM would still have the ongoing program costs, including commenting on proposed operations and monitoring state programs to ensure against unnecessary or undue degradation of the public lands. Once BLM discontinues program administration, costs would be minimal compared to the cost of the existing program. The program under Alternative 2 would cost BLM about 10% of the current program needs, or about $1 million annually. That cost estimate assumes that BLM

does not give funding to the states.

Alternative 3: Proposed Regulations

The cost to the BLM state and field offices to implement the proposed regulations would increase in spite of an expected reduction in overall mineral activity under this alternative. The largest area of increased costs would consists of costs to process Notices and Plans, including the following:

- Screening proposed operations for substantial irreparable harm.
- More validity examinations for proposed operations on withdrawn and segregated lands.
- More common variety determinations where proposed operations may be extracting common variety minerals.
- Bonding for all Notices.
- Processing Plans for all mining activity.
- Mandatory public comment periods for all Plans.
- Increased processing requirements for suction dredging.
- More appeals.

Under Alternative 3 we estimate that each year BLM will process from 300 to 340 Notices and 290 to 330 Plans. Processing costs would be about $20.0 million, which is about $4.5 million above the current funding for processing Notices and Plans. Large unknowns in this estimate are the following:

- The added cost of dealing with the review and consultation requirements for the substantial irreparable harm provision.
- The increase in the number and complexity of appeals received.
- The cumulative effect on the workload as a result of the many procedural changes under this alternative.

The drop in mineral activity expected under Alternative 3, which would range from 5% to 30% depending on the size and type of operation, would reduce the current inspection shortfall of $4.0 million by about $0.7 million. Total inspection costs would be about $7.0 million. We estimate to fully implement the program under the Proposed Action, including the new processing costs and the inspection needs discussed above, would require a 35% increase in the current expenditure level, or about $27.0 million.

Alternative 4: Maximum Protection

Alternative 4 would significantly reduce mineral activity, by from 10% to 75% depending on the size and type of activity. But, Alternative 4 would require operators for all activity greater than casual use to prepare Plans of Operations. BLM estimates that the annual surface management workload would include processing 480 to 580 Plans of Operations. Part of the process would include evaluating the proposed technology to ensure the use of the best available technology and compliance with specific design standards in each Plan, and the preparing of a validity

examination for every project.

BLM expects that Plan processing costs will be $25.9 million per year. Because of the drop in the number of operations, we expect field inspection costs to drop. But with mandatory enforcement we expect total inspection and enforcement costs to be in line with our estimate for the No Action Alternative ($8.7 million). Overall, the funding for fully implementing the Maximum Protection Alternative would require about $31.5 million.

Alternative 5: NRC Recommendations

Because of the requirements to bond Notices and to file Plans of Operations for all mining, processing costs would increase under the NRC Recommendations Alternative. BLM estimates that BLM will need to process 360 to 380 Notices and 340 to 360 Plans per year at a cost of $19.5 million, an increase of $4.0 million over current expenditures. In addition, inspection costs would decline from the current level. BLM estimates that the shortfall from the current expenditures would be $3.1 million. Total processing and inspection costs would be about $27.3 million.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The alternatives considered in detail represent a reasonable range of alternatives to address the issues recognized by scoping. All of the major technical and regulatory issues are considered in at least one of the alternatives that are analyzed in detail. Other issues, such as Mining Law reform, cannot be resolved through rulemaking and were not used in developing alternatives.

Other alternatives considered but eliminated from detailed analysis include one that would consider funding levels or mandating complete funding of the existing regulations and one requiring complete restoration to premining conditions.

The complete funding alternative was eliminated as redundant. The EIS analysis needs to assume the complete implementation of alternatives to fully consider the potential environmental impacts of an alternative's being selected. The analysis of the existing regulations (Alternative 1) is based upon complete implementation of that alternative, which implies complete funding. Complete implementation is also assumed for Alternatives 2, 3, and 4 when assessing potential impacts. The EIS does estimate the relative cost to implement each alternative. Although regulatory programs are often underfunded, assuming complete implementation when presenting the impacts allows the public and the decision maker to see the relative cost versus benefits that might be achieved under the regulatory scheme of each alternative.

In developing a preferred alternative for consideration in the final EIS, two approaches may be taken if adequate funding appears not to be likely. The alternative may be modified to reduce implementing costs, or it may remain unchanged with the recognition that complete implementation would require adequate funding.

The alternative of requiring total restoration of disturbed lands to premining conditions was considered but eliminated from detailed analysis. Complete restoration would require restoring the premining topography with the same habitat composition and productivity levels. In contrast, reclamation requires attaining a stable and productive land area though not necessarily replacing the same predisturbance habitat or exact topography. Both the technical and economic difficulties of attaining complete restoration would make most mining operations on public lands infeasible. Complete restoration would conflict with BLM's multiple use mandate and would offer little commensurate environmental benefit over alternatives with aggressive reclamation requirements.

The alternative of adopting ISO 14000 standards was also considered but eliminated from detailed analysis. Established by the International Organization for Standardization, ISO 14000 standards provide a framework a company can use to incorporate a voluntary environmental management system (EMS) into its operations. Integrating an EMS into a company's operations can offer guidelines and opportunities for continuous improvement of the company's compliance and performance with environmental regulations. But ISO 14000 standards do not replace environmental regulations, and compliance is still necessary within a company's EMS framework. Consequently, ISO 14000 standards could be voluntarily adopted by a company within any of the alternatives analyzed in detail in this EIS and do not need to be considered separately.

NATIONAL RESEARCH COUNCIL REPORT CONSISTENCY

The National Research Council evaluated the adequacy of the existing 3809 regulatory framework. The NRC report *Hardrock Mining on Federal Lands* (NRC 1999) contains both regulatory and nonregulatory recommendations for changes in the existing program. The NRC's Committee on Hardrock Mining on Federal Lands released this final report on September 29, 1999. The report concluded that improvements to the implementation of the existing regulations present the greatest opportunity for improving environmental protection and the efficiency of the regulatory process. The NRC report then listed gaps in the existing regulations and recommended regulatory and nonregulatory changes to the program.

After the release of the report, Congress directed that BLM could finalize the proposed 3809 regulations provided they were not inconsistent with the recommendations in the NRC report. BLM considers this requirement as prohibiting the agency from selecting as final regulations an alternative that would contradict or oppose a NRC recommendation. As a result, the proposed regulations and preferred alternative have been changed in the final EIS so as not to be inconsistent with the NRC report. Where NRC was silent on a specific aspect of the existing regulations, BLM's proposed changes would not be inconsistent with any NRC recommendations.

PREFERRED ALTERNATIVE

BLM's preferred alternative is Alternative 3, the Proposed Action. The preferred alternative has

been changed in the final EIS in response to comments and to not be inconsistent with the recommendations in the NRC report. It is also possible that future Congressional action may limit BLM's ability to adopt the preferred alternative. The timing of the legislative process (among other reasons) may make it impractical for the BLM to restructure the EIS and change the preferred alternative. In such circumstances, while the preferred alternative in this document may not change, the BLM may adopt one of the other alternatives, in whole or in part, to comply with the legislative directive.

SUMMARY TABLES

The last portion of this chapter presents three sets of tables that summarize important components of the EIS. Table 2-1 summarizes and compares the five alternatives by regulatory issue. The table describes the alternatives for each of the regulation components and then in detail for the performance standards, with a breakdown for each environmental or operating component. The numeric notation in the left column shows where the specific language on this subject can be found in the proposed regulations under Alternative 3.

Table 2-2 compares the NRC report conclusions or recommendations with both the existing and the proposed final 3809 regulations. This table allows the reader to see how NRC conclusions or recommendations compare with both the existing regulations and the proposed final 3809 regulations. Excerpts in the right-hand column have been taken near verbatim from the NRC report. Where the right-hand column in the table is blank, the NRC report makes no corresponding mention of this aspect of the regulations.

Table 2-3 summarizes the potential environmental impacts for each alternative. A detailed description of impacts is presented in Chapter 3 for each resource component.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Casual Use Definition/ Suction Dredging [3809.5]	Activities resulting only in negligible surface disturbance and not involving mechanized earthmoving equipment, explosives, or vehicle use in areas closed to off-road vehicles. Interior Board of Land Appeals (IBLA) has recently ruled that suction dredges are not casual use.	Not applicable.	Cumulative impacts could exceed casual use level. Regulations would specify that small suction dredges could be casual use. BLM would not require a Notice or Plan for suction dredging if a state permit is required and BLM has a MOU with the state on suction dredging.	For all activities other than claim staking operator must consult with BLM to determine if the activity is casual use or a Plan is required.	No Change, same as Alternative 1.
Definition of Project Area [3809.5]	A tract of land upon which operations are conducted. Includes area required for building or maintaining roads, powerlines, pipelines, or other means of access. Project area may include one or more mining claims, but claims must be under one ownership.	Would not apply to most operations. Exclusive-use access roads, powerlines, pipelines, etc. would require rights-of-way from BLM.	Change would not specify that mining claims involved in a project be under single ownership.	Same as Alternative 3, except project area would have to be described by metes and bounds or legal description. BLM must approve a specific project area boundary.	No Change, same as Alternative 1.
Definition of Public Lands (Lands where regulations would apply) **[3809.5]**	BLM-administered lands subject to the Mining Law. Does not include lands where only minerals or surface is federal, except that amendments to the Stock Raising Homestead Act require BLM involvement when surface owner does not consent to mineral development.	No change from current definition.	Expand definition to include lands where mineral estate is federal, subject to the Mining Law, and surface estate is private under Stock Raising Homestead Act. Lands with reserved minerals from a sale or exchange could be open to operation of the Mining Law through a land use plan.	Same as Alternative 3.	No Change, same as Alternative 1.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
***Unnecessary or Undue Degradation* Definition (UUD) [3809.5]**	Prudent operator standard. Follow "usual, customary, and proficient" measures. Mitigate impacts. Comply with environmental laws. Perform reclamation. Do not create a nuisance.	Compliance with all state programs for regulating mining, and other federal environmental laws, would be considered adequate for prevention of unnecessary or undue degradation as required by FLPMA.	Replace prudent operator standard with requirement to comply with performance standards. All activity must be reasonably incident to prospecting, mining, or processing operations. Add to definition: conditions, practices, or activities that cause substantial irreparable harm to significant scientific, cultural, or environmental resources that cannot be effectively mitigated.	Same as Alternative 3. Unnecessary or undue degradation would be defined to mean that operations could not irreparably harm resources and that the operator would have to use best available technology and practices as environmental controls. Replace prudent operator standard with requirement to comply with the performance standards. All activity must be reasonably incident to prospecting, mining, or processing operations.	No Change, same as Alternative 1.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Notice vs. Plan of Operations Threshold [3809.11]	Surface disturbance less than 5 acres per calendar year requires a Notice. Plans required for more than 5 acres a year of disturbance or for any activity above casual use in special status areas such as ACECs, California Desert Conservation Area, wild and scenic rivers, wilderness areas, and areas closed to off-road vehicles.	Filing a Notice or Plan with BLM is not required. States would handle all permitting of mineral activities on BLM lands.	Change threshold on the basis of division between exploration and mining. All mining, milling, and bulk sampling over 1,000 tons would require Plans. Exploration disturbing less than 5 acres would require Notices. Exploration in special status lands or disturbing more than 5 acres would require Plans. Expand special status lands to include: national monuments/conservation areas, and lands containing proposed or listed T&E species or their critical habitat.	Eliminate Notice provision. All disturbances exceeding casual use would require Plans of Operations.	Same as Alternative 3. Use existing special status lands.
Mining Claim Validity, Existing Rights, and Mine Economics [3809.100]	Not addressed in 3809 regs. Validity exams are required before Plan approval in wilderness areas per 8560 regulations. BLM has *option* of determining valid existing rights before approving Plans in segregated or withdrawn areas.	No Change. BLM always has option of examining any mining claim at any time.	Add requirement that validity exams determine valid existing rights before approval of Plans in areas withdrawn from operation of mining laws. Discretion to perform validity exams for segregated lands.	Same as Alternative 3 but an economic feasibility study is required for all Plans on all lands. BLM would not approve economically infeasible Plans of Operations..	No Change. Same as Alternative 1.
Common Variety Minerals [3809.101]	Not addressed in 3809 regs. Policy provides for holding escrow during operations if materials to be mined may be of a common variety and subject to payment of fair market value.	No change.	Regulations would provide for holding escrow during operations if materials to be mined may be of a common variety and subject to payment of fair market value.	Plans not approved and mining not allowed until classification of material to be mined has been resolved through a common varieties determination.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
State and Federal Government Coordination [3809.201-204]	MOUs in each state provide for coordination for review, approval, bonding, monitoring, and enforcement. State may have lead for some program elements. Most restrictive requirements (BLM or state) apply.	States would regulate all activity on BLM lands. BLM would periodically evaluate state program to determine if it is preventing unnecessary or undue degradation. BLM would continue to decide which areas are open or closed to mining through the land use planning and withdrawal processes.	When requested, BLM *must* give states the lead where state program is at least as strict as BLM requirements. BLM must concur on Plan approvals. BLM retains inspection and enforcement option and NEPA, NHPA, Tribal Govt.-Govt. coordination and T&E species responsibilities.	BLM has lead role on BLM lands and would coordinate with the states so that the more stringent regulations (federal or state) would apply to the project.	Same as Alternative 1. MOUs would be developed or modified to provide clear procedures for BLM to refer certain noncompliance actions to other federal and state agencies for enforcement.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Applying Regulation Changes to Existing Operations or Facilities [3809.300] [3809.400] [3809.433-434]	Not applicable.	Existing activity could continue according to state requirements.	Existing Notices would expire after 2 years unless bonded and extended. Existing Notices for mining are not required to refile as a Plan if disturbance area does not increase. Existing Plans, pending Plans, or Plan modifications need not comply with new performance standards if filed before effective date of new regulations. All Plans would have to meet new bonding requirements within 180 days of effective date of new regula-tions. New mine facilities added to existing Plans after effective date would have to meet new regulation requirements. Modifications to existing mine facilities after effective date would have to comply with new regulations unless shown not practical for economic, environmental, safety, or technical reasons.	Notices expire in 2 years and must be reclaimed or replaced by Plans. Existing and pending Plans must comply with new regulations as follows: (1) Within 180 days operator would have to file a modified plan. (2) BLM may grant exceptions from specific requirements for economic, environmental, safety, or technical reasons. All new or modified facilities added to existing Plans must comply with the new regulations.	Same as Alternative 3 but without new performance standards. Existing Plans, pending Plans, or Plan modifications would be subject to new regula-tions and would have to meet new bonding requirements within 180 days of effective date of new regula-tions. Modifications to existing mines after effective date would have to comply with new regulations unless shown not practical for economic, environmental, safety, or technical reasons.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Notice and Plan of Operations Contents and Processing [3809.301-313] [3809.401-412]	BLM review of Notices required in 15 calendar days. Plans, 30 days, with option of 60 more days. Open-ended time frame for Plans for NEPA (EIS), NHPA, and T&E species compli-ance. Public comment period on EA if BLM determines there is substantial public interest.	Follow state program requirements for content and processing of activities. No BLM processing or decisions. BLM could comment to state on proposals, just as could any other potentially affected landowner	Expanded detail on Notice and Plan contents. Includes plans for interim management during temporary closures. Operators also required to provide all studies/data BLM needs to comply with NEPA. Review Plan for complete-ness within 30 days. Notice time frame 15 days. Clarify review time frames begin when *complete* Notice or Plan is received. Mandatory public comment period on all Plans for at least 30 days.	Same as Alternative 3 but for Plans only.	Same as Alternative 1. Must provide interim management plans for periods of temporary closure.
Modifications [3809.330-331] [3809.430-431]	Operator-initiated modifications are processed similar to original Notice or Plan. Agency-required modifica-tions must show need and that the issue was unforeseen at the time of initial Plan approval.	Conducted according to state requirements.	Eliminated requirement for BLM to show unforeseen issues that warrant modifica-tion. BLM may require operator to modify Notice or Plan to prevent unnecessary or undue degradation (UUD). Only test is that the modifica-tion is needed to prevent UUD. Plan modifications required at final closure to address unanticipated conditions or new information.	Same as Alternative 3. All Plans must be renewed every 5 years.	Same as Alternative 3.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Temporary or Permanent Closure [3809.334] [3809.336] [3809.424]	Site must be maintained in safe and clean condition. May require removal of all structures and equipment, and site reclamation after unspecified period of nonoperation.	Conducted according to state requirements.	Must follow interim management plans during periods of temporary closure. Notices expire after 2 years. BLM may consider projects abandoned, depending on time and condition of sites and equipment. Plans are similar to Notices. After 5 consecutive years of inactivity, Plans may be terminated.	Same as Alternative 3.	Same as Alternative 3.
Financial Guarantee Requirement (Bonding) [3809.500 - .599]	Bonds required only for Plans at BLM's discretion. Expired policy limits bond amounts to $1,000/acre for exploration and $2,000/acre for mining, except for areas with cyanide use or ARD potential which are bonded at 100% estimated BLM reclamation cost. Use state bonding programs to meet these requirements through agreements.	No BLM bonding. The state would set, hold, and administer financial guarantees according to state regulations.	Actual-cost bonding required for all Notices and Plans. Operator would provide initial reclamation cost estimate. Financial guarantee must cover 100% of reclamation costs, including any post-closure water treatment or other site maintenance. Equivalent state bonding instruments could be used to meet requirements, but must be redeemable by the Secretary of the Interior. Discontinue accepting corporate guarantees.	Same as Alternative 3. Bonding would be expanded to cover unplanned events such as spills or facility failures.	Same as Alternative 3.

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Inspection and Monitoring [3809.600]	Operators must allow BLM to inspect operations. Policy is for inspections four times annually where cyanide is used or significant potential for acid rock drainage and twice annually for all other operations. Monitoring programs are developed during Plan review. The operator conducts environmental testing (water, air, soil, etc.) and submits the results to BLM. BLM may take check samples during inspections.	States would conduct inspection and monitoring programs.	Same as Alternative 1. Add: Mandate current policy of inspections four times annually where cyanide is used or potential exists for acid rock drainage. Upon prior notification to BLM, in certain circumstances, may allow the public to annually tour mines.	Same as Alternative 3. Operators would be required to hire independent third parties for environmental monitoring. BLM would be required to take check samples during inspections.	Same as Alternative 1.
Type and Adequacy of Penalties for Non-compliance [3809.700]	BLM issues notices and records of noncompliance. Federal injunctions and criminal prosecution may be used.	State enforcement and penalty programs would be used. BLM would not issue separate penalties. Other agencies would still enforce other laws using their statutory authorities.	Same as Alternative 1. Add: BLM would issue discretionary administrative penalties ($5,000/day), suspensions, revocation of Plan approval, and nullification of Notice for failure to comply with enforcement orders. Under MOUs, BLM would refer certain noncompliance actions to other federal and state agencies for enforcement.	Same as Alternative 3 except enforcement orders and penalties would be mandatory. Operators with unresolved noncompliance could have future permits blocked.	Same as Alternative 3. No additional regulations on criminal penalties. Use current criminal penalties process (Alt..1).

Table 2-1. 3809 Regulation Alternatives Summary by Provision					
Regulation Issue	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Appeals Process [3809.800]	BLM decisions must be appealed within 30 days. Operators must appeal to BLM state director, then to the Interior Board of Land Appeals (IBLA). Third-party appeals of BLM decisions are made to IBLA. BLM's decision is in full force and effect during an appeal, unless IBLA grants a written request for a stay.	Generally there would be no appeals since normally a federal action would not be involved. Where BLM takes an action under some other regulations, such as for rights-of-way, the decision could be appealed under the appeals rules for that program.	Both operator and third parties could request a state director review of any decisions, or appeal directly to IBLA. State director decisions could also be appealed to IBLA. All decisions would be in full force and effect unless a written request for a stay is granted by the reviewing entity (state director or IBLA).	Same as Alternative 3 except that all decisions would be automatically stayed from effect during consideration of the appeal unless a written request for implementation is granted by the reviewing official (state director or IBLA).	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
General Performance Requirements [3809.420]	Prevent unnecessary or undue degradation. Follow requirements at 3809.1-3(d). Other site-specific requirements may be developed during individual project review.	Mining regulation standards based exclusively on state standards and requirements or those of other federal agencies such as EPA and the Army Corps of Engineers for specific environmental media.	Outcome-based standards with site-specific allowances. Includes BLM cyanide and acid rock drainage requirements. Use proper equipment, devices, and practices. Follow reasonable and customary sequence of exploration, development, and reclamation. Must conduct activities to prevent substantial unmitigatable and irreparable harm to significant resources.	Specify minimum national design standards for exploration, mining, and reclamation. Incorporate BLM policy requirements for cyanide and acid rock drainage. Must conduct activities to prevent irreparable harm to productivity of the land as determined by land use plans.	Same as Alternative 1.
Land Use Plans	Not addressed.	Not addressed.	Consistent with the Mining Law, operations and postmining land use must comply with land use plans.	Same as Alternative 3. BLM would use land use plans to determine resource conditions that constitute irreparable harm.	Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Surface and Ground Water Protection	All operators must comply with federal and state water quality standards. Exploration operations and drill hole plugging are not specified.	Same as Alternative 1. State water protection programs and other federal water protection requirements would still apply to operations on BLM-administered lands.	Same as Alternative 1, plus pit water quality must not endanger wildlife, public water supplies, or users. To meet this standard, operators would use operation and reclamation practices that minimize water pollution and changes in flow in preference to water treatment or replacement. All drill cuttings and mud must be contained onsite. All exploration drill holes must be plugged to prevent mixing of waters from aquifers, impacts to beneficial uses, downward water loss, or upward loss from artesian conditions. Bore holes must be plugged on the surface to prevent direct inflow of surface water and to eliminate the open hole as a hazard.	Same as Alternative 3 with these added criteria. Pit water quality must not exceed the acute toxicity standard for metals so as not to endanger wildlife, public water supplies, or users. Operators must not need to rely for more than 20 years on water treatment, maintenance, or replacement of lost flow to meet this standard. All drill cuttings and mud must be contained onsite using sumps or portable tanks. All exploration drill holes must be plugged from the bottom to no more than 10 feet of the surface with bentonite or a similar compound to prevent mixing of waters from aquifers, impacts to beneficial uses, downward water loss, or upward loss from artesian conditions. Upper 10 feet must be plugged with cement.	Same as Alternative 1. Project approvals would establish acceptable postclosure water quality conditions for pit lakes suitable to long-term use of the site and those needed to adequately protect ground and surface waters, as well as wildlife and waterfowl.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Wetlands and Riparian Area Protection	Not specified. State and 404 permits (from the Army Corps of Engineers) must be acquired for dredging or filling in U.S. waters.	Same as Alternative 1.	Same as Alternative 1 with specific site-selection criteria added: Operator must: (1) avoid locating operations in wetlands and riparian areas where possible, (2) minimize impacts to wetlands and riparian areas, and (3) mitigate damage to wetlands and riparian areas through measures such as restoration or offsite replacement.	Same as Alternative 1 with specific site selection and mitigation criteria: Operator must (1) avoid locating operations in wetlands and riparian areas where possible, (2) minimize impacts to wetlands and riparian areas, and (3) mitigate damage to wetland and riparian areas by restoring to proper functioning condition within 10 years after operations or offsite replacement at a ratio of at least 1.5 acres for every 1 acre disturbed.	Same as Alternative 1.
Soil or Growth Media Handling	Where reasonably practicable, topsoil must be saved and reapplied to disturbed areas after areas have been reshaped.	Topsoil must be salvaged and reapplied according to state standards.	Topsoil or other growth media must be removed, segregated, and preserved for later use in revegetation during reclamation. If topsoil or growth media are of poor quality, other strata or more suitable growth media must be removed, segregated, or preserved in a like manner.	Same as Alternative 3. Topsoil or other growth media must be removed from lands to be disturbed by operations, segregated by soil horizon, and preserved for later use in revegetation during reclamation.	No Change. Same as Alternative 1

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Revegetation Requirements	Where reasonable and practicable, disturbed areas must be revegetated. Revegetation is to provide a diverse vegetation cover and is a component of the requirement to rehabilitate wildlife habitat. Ban on creating a nuisance would be used to address noxious weed control.	Disturbed areas must be revegetated where reasonable and practicable according to state standards.	Same as Alternative 1 with more specifics on outcome. All disturbed lands must be revegetated to establish a stable and long-lasting cover that is self-sustaining and comparable in both diversity and density to preexisting natural vegetation. Use native species to the extent feasible and establish success according to schedule in reclamation plan. Operations must prevent and control noxious weed infesta-tions.	Same as Alternative 3 with some more design specifics. Canopy cover must be at least 90% that of adjacent undisturbed lands with similar elevation, slope, and aspect at same time of year. Only native species may be used. Operations, including revegetation, must prevent introducing noxious weeds or *eliminate* existing infestations.	No Change. Same as Alternative 1.
Fish, Wildlife and Plant Protection and Habitat Restoration	Operator must act to prevent harm to threatened and endangered species and their habitats that might be affected by operations. Reclamation must include rehabilitating fisheries and wildlife habitat.	Use state standards for protecting fish and wildlife. Taking of a threatened or endangered species or migratory birds would still be prohibited under the Endangered Species Act and Migratory Bird Treaty Act.	Same as Alternative 1. Operators must minimize disturbances and adverse impacts to fish, wildlife, and related environmental values. All processing solutions, reagents, or mine drainage toxic to wildlife must be fenced or netted to prevent wildlife access.	Same as Alternative 3. Operators must minimize disturbance and within 10 years restore disturbed habitat to proper functioning premining condition. Operators must not jeopardize special status species, causing them to be listed as threatened or endangered.	Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Protecting Cultural Resources	National Historic Preservation Act Section 106 process used to develop mitigation for cultural resources found before Plan approval. Operators cannot knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, object, or cultural site discovered during operations. Operators must immediately notify BLM of any cultural resources found during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove discovery at the government's cost, after which operations may proceed.	State standards would be used for protecting cultural resources.	Same as Alternative 1, except 30 calendar days instead of 10 working days would be allowed for data recovery. BLM would determine who bears cost of recovery on a case-by-case basis.	Same as Alternative 1, except no time limit would be set on data recovery of significant cultural resources. Operator would bear cost of site recovery.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Protecting Paleon-tological Resources	Operators cannot knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains. Operators must immediately notify BLM of any paleontological resources discovered during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove discoveries at the government's cost, after which operations may proceed.	State standards would be used to protect paleontological resources.	Same as Alternative 1, except 30 calendar days instead of 10 working days would be allowed for data recovery. BLM would determine who bears cost of recovery on a case-by-case basis.	Same as Alternative 1, except no time limit on data recovery of significant paleontological resources. Operators would bear cost of site recovery.	No Change. Same as Alternative 1.
Protecting Cave Resources	Not specified.	Use state standards for protecting cave resources.	Inventories and mitigation plans would be required before disturbance of cave resources. Operators must immediately notify BLM of any significant cave resources found during operations and leave such discoveries intact. BLM has 30 calendar days to protect a discovery, after which operations may proceed. BLM would determine who bears the cost for protecting cave resources.	Same as Alternative 3, except there would be no time limit on data recovery of significant cave resources Operator would bear cost of cave resource protection.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
American Indian Traditional Cultural Values, Practices, and Resources	Not specified in regulations. Consultation with American Indians is used to develop mitigation on a case-by-case basis.	State standards would be used to protect American Indian resources. BLM would help American Indians consult with states on a specific project's impacts.	Consultation with American Indians is specified as part of Plan review process. Consultation would be used to develop mitigation on a case-by-case basis where mitigation is possible.	Plan approval in special status areas, designated through the land use planning process as containing American Indian traditional cultural values, would require concurrence by affected American Indians.	No Change. Same as Alternative 1.
Roads and Structures	Minimize surface disturbance, use existing access where practical, maintain safe design, follow natural contour, minimize cut and fill. Operators must consult with BLM for roadcuts greater than 3 feet on inside edge. All structures must be built and maintained according to state and local codes. Structures are addressed in separate rules at 43 CFR 3715.	Roads would be built and maintained according to state standards. Same as Alternative 1 for structures on BLM lands.	Same as Alternative 1. (Consultation not specified for roadcuts greater than 3 feet.)	Roads built for access, haulage, service, or exploration must not have maximum sustained grade greater than 10%, with short pitches of less than 300 feet to take advan-tage of topography not to exceed a 12% grade. Diagonal drainage barriers must be placed as follows: Grade % (ft) — Max. Spacing 0 - 2 — 200 3 - 8 — 150 9 -12 — 80 All roads must be reclaimed to approximately original contour. All structures must be built and operated according to codes and removed at the end of operations.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Handling of Potentially Acid-Forming, Toxic, or Other Deleterious Materials	Reclamation must include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to BLM policies [acid rock drainage (ARD) policy].	Potentially acid-forming material must be managed according to state requirements. No discharges could exceed state and federal effluent limits under the Clean Water Act or state water quality acts.	Same as Alternatives 1 and 2 plus incorporate ARD policy. Static or kinetic testing must be used to identify and guide handling and placement of potentially acid-forming materials. ARD control measures must be fully integrated with operational procedures, facility design, and environmental monitoring programs. ARD control must focus on prevention or control of acid-forming reaction. If formation of ARD cannot be prevented, its potential migration must be prevented or controlled. Capture and treatment of ARD or other undesirable effluent is required if source controls and migration controls do not prove effective. Effluent treatment could be used only after source control has been employed.	Same as Alternative 3 with more design specifics and suitability criteria. BLM could set criteria to determine if deposits are unsuitable for mining because of acid-forming and acid-neutralizing mineral content, climate, and available control technologies. BLM would not approve mining of materials exceeding these criteria. Potentially toxic mine wastes (pond sludge, lab wastes) could not be disposed of on BLM-managed lands. Plans proposing treatment periods longer than 20 years to meet standards are not acceptable and would be denied.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Leaching and Processing Operations and Impoundment	Reclamation must include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to BLM policies [cyanide management policy, BLM state cyanide management plans, and acid rock drainage (ARD) policy].	Leaching and processing operations must be designed, built, and operated according to state standards.	Same as Alternatives 1 and 2 plus includes BLM's cyanide policy: Cyanide facilities must be able to contain maximum operating solution with capacity for the 100-year, 24-hour storm event, including snowmelt events and expected draindown from heaps during power outages. Secondary containment required for vats, tanks, or recovery circuits to prevent release of toxic solutions. Heaps and other solution containment structures must be monitored for leaks. Cyanide solution and heaps must be detoxified upon release to the environment, at temporary closure, or at final reclamation. Operations must not cause wildlife mortality. Exposed cyanide solutions must be fenced and covered to prevent access by public, wildlife, and livestock. Neutralization may be used in lieu of fencing tailings impoundments.	Same as Alternative 3, plus: Design for probable maximum precipitation event. Secondary containment system around vats, tanks, or recovery circuits must be adequate to contain 110% of the maximum contents. All leach pads must employ at least two synthetic liners with drainage layer over at least 24-inches of compacted clay. Each synthetic liner must be at least 40 mils thick. The clay liner must be compacted to a permeability of less than $1X10^{-7}$ cm/sec. Leak detection and recovery systems must be built for heaps and other solution containment structures. Ore heap and leach pads must have a minimum factor of safety of 1.3 and be stable during construction. Cyanidated material must be detoxified at temporary or final closure to less than 0.2 mg/l WAD cyanide, pH between 6.0 and 8.5, and metal levels less than the MCLs. Post-closure discharges must achieve levels acceptable to the state and EPA.	No Change. Same as Alternative 1.

Table 2-1. 3809 Regulations Summary of Performance Standards by Alternatives					
Performance Standards Sub-Issues	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5: NRC Recommendations**
Stability, Grading, and Erosion Control	Reclamation must include measures to control erosion, landslides, and runoff.	Stability, grading, and erosion control must be achieved according to state regulations.	Erosion must be minimized during all phases of operations. All disturbed areas must be graded or otherwise engineered to a stable condition to minimize erosion and facilitate revegetation. All areas must be recontoured to blend in with the premining natural topography to the extent practical.	Erosion must be controlled so that soil loss does not exceed 2 tons/acre/year. All excavations (roadcuts, drillsites, etc.) Must be recontoured to about the original contour. Recontoured waste rock and spent ore must be graded to no steeper than 3h:1v.	No Change. Same as Alternative 1.
Pit Backfilling and Reclamation	Not specified. Stable highwall might be left where required to preserve evidence of mineralization.	Backfilling or reclaiming of mine pits would comply with state requirements.	BLM would determine degree of backfilling required, if any, from a site-specific operator demonstration of feasibility based on economic, environmental, and safety considerations. Mitigation would be required for pit areas that are not backfilled.	Backfilling of mine pits presumed. Only exemption from backfilling would be where found environmentally unsound or unsafe. Mitigation would be required for pit areas that are not backfilled	No Change. Same as Alternative 1. Amount of pit backfilling determined on a case-by-case basis.

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Casual Use Definition / Suction Dredging [3809.5]	Activities resulting in only negligible surface disturbance and not involving mechanized earthmoving equipment, explosives, or vehicle use in areas closed to off-road vehicles. IBLA has recently ruled that suction dredging is not casual use.	Cumulative impacts could exceed casual use level. Regulations would specify that small suction dredges could be casual use. BLM would not require a Notice or Plan for suction dredging if a state permit is required and BLM has a MOU with the state on suction dredging.	The Committee favors retaining the BLM distinction for casual use operations...(pg. 95) The Committee believes that BLM...is appropriately regulating these small suction dredging operations under the current regulations as casual use...(pg. 96).
Definition of Project Area [3809.5]	A tract of land upon which operations are conducted. Includes the area required for building or maintenance of roads, transmission lines, pipelines, or other means of access. Project area may include one or more mining claims, but claims must be under one ownership.	Change would not specify that the mining claims involved in a project be under single ownership.	
Definition of Public Lands (Lands where the regulations would apply) **[3809.5]**	BLM-administered lands subject to the Mining Law. Does not include lands where only the minerals or surface is federal, except that amendments to the Stock Raising Homestead Act require BLM's involvement when surface owner does not consent to mineral development.	Expand definition to include lands where mineral estate is federal, subject to the Mining Law, and the surface estate is private under the Stock Raising Homestead Act. Lands with reserved minerals from a sale or exchange could be open to the operation of the Mining Law through a land use plan.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
***Unnecessary or Undue Degradation* Definition (UUD) [3809.5]**	Prudent operator standard. Follow "usual, customary, and proficient" measures. Mitigate impacts. Comply with environ-mental laws. Perform reclamation. Do not create a nuisance.	Replace the prudent operator standard with requirement to comply with performance standards. All activity must be reasonably incident to prospecting, mining, or processing operations. Add to definition: conditions, practices, or activities that cause substantial irreparable harm to significant scientific, cultural, or environmental resource values that cannot be effectively mitigated.	**Recommendation 15:** BLM should prepare guidance manuals and conduct staff training to communicate the agency's authority to protect valuable resources that may not be protected by other laws. (pg. 120) [S]The current regulatory definition of UUD does not explicitly provide authority to protect valuable or sensitive resources that are not protected by other laws. Some resources may deserve to be protected from all impacts, while other resources may withstand some impacts with associated mitigation. (pgs. 69 & 121)
Notice vs. Plan of Operations Threshold [3809.11]	Surface disturbance of less than 5 acres per calendar year requires a Notice. A Plan is required for more than 5 acres a year of disturbance or for any activity exceeding casual use in special status areas such as areas of critical environ-mental concern, the California Desert Conservation Area, wild and scenic rivers, wilderness areas, and areas closed to off-road vehicles.	Change threshold on the basis of division between exploration and mining. All mining, milling, and bulk sampling over 1,000 tons would require Plans. Exploration disturbing less than 5 acres would require Notices. Exploration in special status lands or disturbing more than 5 acres would require Plans. Expand special status lands to include: national monuments/conservation areas, and lands containing proposed or listed T&E species or their critical habitat.	**Recommendation 2:** Plans of operations should be required for mining and milling operations, other than those classified as casual use or exploration activities, even if the area disturbed is less than 5 acres. (pg. 95) ...the Committee believes a Plan of operations should generally be required for activities involving bulk sampling. (pg. 96) [S] With financial assurance the 5-acre threshold appears reasonable for requiring exploration disturbance to go to a Plan of operations. (pg. 99)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Mining Claim Validity, Existing Rights, and Mine Economics [3809.100]	Not addressed in 3809 regs. Validity exams required before Plan approval in wilderness areas per the 8560 regulations. BLM has option of determining valid existing rights before approving Plans in segregated or withdrawn areas.	Add requirement that validity exams be conducted to determine valid existing rights before approval of Plans in areas withdrawn from operation of mining laws. Discretion to perform validity exams for segregated lands.	
Common Variety Minerals [3809.101]	Not addressed in 3809 regs. Policy provides for holding escrow during operations if materials to be mined may be of a common variety and subject to payment of fair market value.	Regulations would provide for holding escrow during operations if materials to be mined may be of a common variety and subject to payment of fair market value.	
State and Federal Government Coordination [3809.201 - .204]	Memorandums of understanding (MOUs) with each state provide for coordination for review, approval, bonding, monitoring, and enforcement. States may have lead for some program elements. Most restrictive requirements (BLM or state) apply.	When requested, BLM *must* give states the lead where state program is at least as strict as BLM requirements. BLM must concur on Plan approvals. BLM retains inspection and enforcement option and NEPA, NHPA, Tribal Gov't-Gov't coordination and T&E species responsibilities.	Given the variation in topography, climate, and area of federal lands open to hardrock mining in any state, differences in state laws, and local differences in public attitudes toward mining, consistency among state MOUs may not be necessary or even desirable. (pg. 52)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Applying Regulation Changes to Existing Operations [3809.300] [3809.400]	Not applicable.	Existing Notices would expire after 2 years unless bonded and extended. Existing Notices for mining need not be refiled as Plans if disturbance area does not increase. Existing Plans, pending Plans, or Plan modifications are not required to comply with the new performance standards if filed before the effective date of new regulations. All Plans would have to meet the bonding requirements within 180 days of the effective date of the new regulations. New mine facilities added to existing Plans or modifications to existing mine facilities would have to comply with the new regulations unless shown not to be practical for economic, environmental, safety, or technical reasons.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Notice and Plan of Operations Contents and Processing [3809.301 - .313] [3809.401 - .412]	BLM review of Notices required in 15 calendar days and of Plans in 30 days, with option of 60 more days. Open-ended time frame for Plans for NEPA (EIS), NHPA, and T&E species compliance. Public comment period on EA if BLM determines there is substantial public interest.	Expanded detail on Notice and Plan contents. Includes plans for interim management during temporary closures. Operators required to provide all studies/data BLM needs to comply with NEPA. Review Plan for completeness within 30 days. Notice time frame is 15 days. Clarify review time frames begin when a complete Notice or Plan is received. Mandatory public comment period on all Plans for at least 30 days.	[S] With adequate bonding for reclamation, small miners should receive expedited permits. (pg. 98) ...the current BLM 3809 regulation with a 15-day response time for Notice-level exploration should be maintained... (pg. 98). **Recommendation 10:** From the earliest stages of the NEPA process, all agencies with jurisdiction over mining operations or affected resources should be required to cooperate effectively in the scoping, preparation, and review of environmental impact assessments for new mines. Tribes and nongovernmental organizations should be encouraged to participate and should participate from the earliest stages. (pg. 111) [BLM] should develop procedures that will enable them to identify, in the review and approval process for plans of operations, the kinds of post-mining requirements that are likely to arise and to incorporate these into the approved plan of operations. (pg. 120) **Recommendation 16:** BLM...should plan for and implement a more timely permitting process, while still protecting the environment. (pg.122) [S]The lead agency should set and achieve deadlines and have sufficient qualified staff to do so....Recommendations that support more efficient reviews and permitting include 1, 2, 6, 10, 11, & 12. Information on the time involved in recent reviews should be compiled and studied to identify causes for delays. (pg. 123)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Modifications [3809.330-331] [3809.430-431]	Operator-initiated modifications are processed like original Notice or Plan. Agency-required modifications must show need and that the issue was unforeseen at the time of initial Plan approval.	Eliminates requirement for BLM to demonstrate unforeseen issues that warrant modification. BLM may require operator to modify Notice or Plan to prevent unnecessary or undue degradation (UUD). Only test is that the modification is needed to prevent UUD. Plan modifications required at final closure to address unexpected conditions or new information.	**Recommendation 4:** BLM...should revise their regulations to provide more effective criteria for modifications to Plans, where necessary, to protect federal lands. (pg. 99) Staff comments and documents reviewed by the Committee suggest that the regulations should be modified to improve criteria for modifications, require periodic reviews, and /or specify expiration dates for approved plans of operations to assure the opportunity to adjust practices where needed. (pg. 100) The Committee did not determine if plans of operations should be reviewed or reopened at predetermined intervals. (pg 101) Financial assurance instruments should also be updated as conditions change that might affect the levels of bonding or other forms of financial assurance. (pg. 101)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Temporary or Permanent Closure [3809.334 3809.424]	Site must be maintained in safe and clean condition. May require removal of all structures and equipment and reclaiming of site after an unspecified period of nonoperation.	Must follow interim management plans during periods of temporary closure. Notices expire after 2 years. BLM may consider the project abandoned, depending on time and condition of site and equipment. Plans are similar to Notices. After 5 consecu-tive years of inactivity the Plan may be terminated.	**Recommendation 5:** BLM...should adopt consistent regulations that a) define the conditions under which mines will be considered to be temporarily closed; b) require that interim management plans be submitted for such periods; and c) define the conditions under which temporary closure becomes permanent and all reclamation closure requirements must be completed. (pg.101) **Recommendation 14:** BLM...should plan for and assure the long-term post-closure management of mine sites on federal lands. (pg 118). [S]BLM should consider land uses appropriate for closed and reclaimed mines, and whether any uses should be controlled or precluded. Management requirements need to address and assure: future mineral access, maintaining measures to protect the public from safety hazards, measures to assure integrity of closed waste units including monitoring and repair, long-term environmental monitoring with corrective measures programs, operation and maintenance of water treatment facilities needed to maintain water quality compliance over the long term, and financial assurance to ensure implementation of these post-closure management requirements. (pg. 119)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Financial Guarantee Requirements (Bonding) [3809.500 - .599]	Bonds required only for Plans at BLM's discretion. Expired policy limits bond amounts to $1,000/acre for exploration and $2,000/acre for mining, except for areas with cyanide use or ARD potential which are bonded at 100% estimated BLM reclamation cost. Use state bonding programs to meet these requirements through agreements.	Actual-cost bonding required for all Notices in addition to Plans. Operator would give initial reclamation cost estimate. Financial guarantee must cover 100% of the reclamation costs, including any postclosure water treatment or other site maintenance. Existing Plans must provide financial assurance within 180 days of effective date of new regulations Equivalent state bonding instruments could be used to meet requirements but must be redeemable by the Secretary of the Interior. Discontinue accepting corporate guarantees.	Financial Guarantees - The various finanacial mechanisms should be secure and sufficiently liquid to allow responses to near-term needs. (pg 61) Based on the Committee's findings, inadequate protection of the public and the environment caused by current financial assurance procedures is a gap in the regulatory programs. (pg. 65) Financial risks to the public and environmental risks to the land exist whenever secure financial assurances are lacking. (pg. 90) **Recommendation 1:** Financial assurance should be required for reclamation of disturbances to the environment caused by all mining activities beyond those classified as casual use, even if the area disturbed is less than five acres. (pg.93). The objective of this recommendation is to guarantee financial assurance for all significant disturbances. (pg. 94) Standard bond amounts for certain types of activities on specific kinds of terrain should be established by [BLM]...A set of activity-and terrain-dependent standard bond amounts...should be established for typical activities... Standard bond amounts... should be used in lieu of detailed calculations...based on the engineering design of a mine or mill. (pgs. 94-95) ...the Committee encourages the use of bond pools to lessen the financial burden on small miners. (pg. 95) The Committee does not intend that bonding of exploration activities result in a federal action that would automatically trigger an EA or EIS.(pg.99) Appropriate types of financial assurance should be investigated for long-term water treatment (pg.120).

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Inspection and Monitoring [3809.600]	Operator must allow BLM to inspect operations. Policy is for inspections four times annually where cyanide is used or significant potential exists for acid rock drainage and twice annually for all other operations. Monitoring programs are developed during Plan review. The operator conducts environmental testing (water, air, soil, etc.) and submits the results to BLM. BLM may take check samples during inspections.	Same as Alternative 1. Add: Mandate current policy of inspections four times annually where cyanide is used or the potential exists for acid rock drainage. Upon prior notification to BLM, in certain circumstances, may allow the public to annually tour mining operations.	Post-Closure Issues...An important part of long-term management will be monitoring, inspection, and low-level maintenance of reclamation features, such as soil covers, vegetation, closed impoundments, waste rock piles, and water diversion structures. In some cases the quality of surface water or groundwater must also be monitored. (pg. 84)
Type and Adequacy of Penalties for Non-compliance [3809.700]	BLM issues notices of noncompliance and records of noncompliance. Federal injunctions and criminal prosecution may be used.	Same as Alternative 1. Add: BLM would issue discretion-ary administrative penalties ($5,000/day), suspensions, revocation of Plan approval, and nullification of Notice for failure to comply with enforce-ment orders. Under MOUs, BLM would refer certain noncompliance actions to other federal and state agencies for enforcement.	**Recommendation 6:** ...BLM... should have both (1) authority to issue administrative penalties for violations of their regulatory requirements, subject to appropriate due process, and (2) clear procedures for referring activities to other federal and state agencies for enforcement. (pg. 102)
Appeals Process [3809.800]	BLM decisions must be appealed within 30 days. Operator must appeal to BLM state director, whose decisions may be appealed to the Interior Board of Land Appeals (IBLA). Third-party appeals of BLM decisions are made directly to IBLA. Decisions appealed to IBLA are in full force and effect unless IBLA grants a written request for a stay.	Both operator and third-party appeals would be to IBLA. *State director appeals would be provided for.* All decisions would be in full force and effect unless a the reviewing entity (either state director or IBLA) grants a written request for a stay.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
General Performance Standard Requirements [3809.420]	Prevent unnecessary or undue degradation. Follow requirements at 3809.1-3(d). Other site-specific requirements may be developed during individual project review.	Outcome-based standards with site-specific allowances. Includes BLM cyanide and acid rock drainage requirements. Use proper equipment, devices, and practices. Follow reasonable and customary sequence of exploration, development, and reclamation. Must conduct activities to prevent substantial irreparable and unmitigatable harm to significant resources.	**Recommendation 9:** BLM...should continue to base their permitting decisions on the site-specific evaluation process provided by NEPA. The... [agency] should continue to use comprehensive performance-based standards rather than using rigid, technically prescriptive standards....[BLM] should regularly update technical and policy guidance documents to clarify how statutes and regulations should be interpreted and enforced. (pg. 108) Although mining operations are regulated by a variety of environmental protection laws...these laws may not adequately protect all the valuable environmental resources..Examples of resources that may not be adequately protected include springs, seeps, riparian habitat, ephemeral streams, and certain types of wildlife. (pg. 121)
Land Use Plans	Not addressed.	Consistent with the Mining Law, operations and postmining land use must comply with the land use plan.	Note: these recommendations are directed at BLM's planning process and not at any direct change in the 3809 regulations. **Recommendation 13:** BLM... should identify, regularly update, and make available to the public, information identifying those parts of federal lands that will require special consideration in land use decisions because of natural and cultural resources or special environmental sensitivities. (pg. 117) ...provisions should be made to amend or clarify, as necessary, applicable land use plans to reflect the post-closure requirements of the site and to consider institutional, management, staffing, and other needs of the post-closure mine site. (pg.120)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Surface and Ground Water Protection	All operators must comply with federal and state water quality standards. Exploration operations and drill hole plugging are not specified.	Same as Alternative 1, plus pit water quality must not endanger wildlife, public water supplies, or users. To meet this standard, operation and reclamation practices that minimize water pollution and changes in flow would be used in preference to water treatment or replacement. All drill cuttings and mud must be contained onsite. All exploration drill holes must be plugged to prevent mixing of waters from aquifers, impacts to beneficial uses, downward water loss, or upward loss from artesian conditions. Bore holes must be plugged on the surface to prevent direct inflow of surface water and to eliminate the open hole as a hazard.	The Committee concluded that pit lake water quality should be subject to regulation and not simply left to chance. However, the committee had difficulty identifying a universal approach suitable for the classification of all pit lakes... Project approvals should clearly establish acceptable post-closure water quality conditions appropriate to long-term use of the site and those that provide adequate protection for ground and surface waters, as well as wildlife and waterfowl. (pg. 109). Although mining operations are regulated by a variety of environmental protection laws...these laws may not adequately protect all the valuable environmental resources..Examples of resources that may not be adequately protected include springs, seeps, riparian habitat, ephemeral streams, and certain types of wildlife. (pg. 121)
Wetlands and Riparian Area Protection	Not specified. State and 404 permits (from the Army Corps of Engineers) must be acquired for dredging or filling in U.S. waters.	Same as Alternative 1 with specific site-selection criteria added: Operator must (1) avoid locating operations in wetland and riparian areas where possible, (2) minimize impacts to wetlands and riparian areas, and (3) mitigate damage to wetland and riparian areas through measures such as restoration or offsite replacement.	Use of such [advisory] guidelines is consistent with the principle that regulatory decisions should be based on site-specific evaluations and conditions. For instance, in many areas of the western U.S., healthy riparian habitat is scarce and has high value for wildlife or as a buffer to protect stream quality. In these cases, the flexible regulatory framework would suggest that riparian areas should be valued and be provided reasonable protection in site-specific decisions (pgs. 68-69). Although mining operations are regulated by a variety of environmental protection laws...these laws may not adequately protect all the valuable environmental resources..Examples of resources that may not be adequately protected include springs, seeps, riparian habitat, ephemeral streams, and certain types of wildlife. (pg. 121)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Soil or Growth Media Handling	Where reasonably practicable, topsoil must be saved and reapplied to disturbed areas after they have been reshaped.	Topsoil or other growth media must be removed from lands to be disturbed and segregated and preserved for later use in revegetation during reclamation. If topsoil or growth media are of such poor quality so as not to be reasonably effective in sustaining revegetation, other strata or more suitable growth media must be removed, segregated, or preserved in a like manner.	
Revegetation Requirements	Where reasonable and practicable, disturbed areas must be revegetated. Revegetation is to provide a diverse vegetation cover. Revegetation is a component of the requirement to rehabilitate wildlife habitat. Prohibition on creation of a nuisance used to address noxious weed control.	Same as Alternative 1 with more specifics on outcome. All disturbed lands must be revegetated to establish a stable and long-lasting cover that is self-sustaining and comparable in both diversity and density to preexisting natural vegetation. Use native species to the extent feasible and establish success according to the schedule in the reclamation plan. Operations must prevent and control noxious weed infestations.	
Fish, Wildlife and Plant Protection and Habitat Restoration	Operators must act to prevent harm to threatened and endangered species and their habitats that might be affected by operations. Reclamation must include rehabilitating fisheries and wildlife habitat.	Same as Alternative 1. Operators must minimize disturbances and adverse impacts to fish, wildlife, and related environmental values. All processing solutions, reagents, or mine drainage toxic to wildlife must be fenced or netted to prevent wildlife access.	Although mining operations are regulated by a variety of environmental protection laws...these laws may not adequately protect all the valuable environmental resources..Examples of resources that may not be adequately protected include springs, seeps, riparian habitat, ephemeral streams, and certain types of wildlife. (pg. 121)

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Protecting Cultural Resources	National Historic Preservation Act Section 106 process is used to develop mitigation for cultural resources found before Plan approval. Operators cannot knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, object, or cultural site discovered during operations. Operators must immediately notify BLM of any cultural resources found during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove the discovery at the government's expense, after which operations may proceed.	Same as Alternative 1, except 30 calendar days instead of 10 working days would be allowed for data recovery. BLM would determine who bears the cost of recovery on a case-by-case basis.	
Protecting Paleontological Resources	Operators cannot knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains. Operators must immediately notify BLM of any paleontological resources discovered during operations and must leave such discoveries intact. BLM has 10 working days to protect or remove the discoveries at the government's expense, after which operations may proceed.	Same as Alternative 1, except 30 calendar days instead of 10 working days would be allowed for data recovery. BLM would determine who bears the cost of recovery on a case-by-case basis.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Protecting Cave Resources	Not specified.	Inventories and mitigation plans would be required before disturbance of cave resources. Operators must immediately notify BLM of any significant cave resources found during opera-tions and leave such discoveries intact. BLM has 30 calendar days to protect a discovery, after which operations may proceed. BLM would determine who bears the cost for protecting cave resources.	
American Indian Traditional Cultural Values, Practices, and Resources	Not specified in the regulations. Consultation with American Indians is used to develop mitigation on a case-by-case basis.	Consultation with American Indians is specified as part of the Plan review process. Consultation would be used to develop mitigation on a case-by-case basis where mitigation is possible.	**Recommendation 10:** ... Tribes ... should be encouraged to participate [in new mine permitting] and should participate from the earliest stages. (pg. 111)
Roads and Structures	Minimize surface disturbance, use existing access where practical, maintain safe design, follow natural contours, minimize cuts and fills. Operators must consult with BLM for roadcuts greater than 3 feet on the inside edge. All structures must be built and maintained according to state and local codes. Structures are addressed in separate rules at 43 CFR 3715.	Same as Alternative 1. (Consultation not specified for roadcuts greater than 3 feet.)	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Handling of Potentially Acid-Forming, Toxic, or Other Deleterious Materials	Reclamation must include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to BLM policies [acid rock drainage (ARD) policy].	Same as Alternatives 1 and 2 plus: Incorporate ARD policy. Static or kinetic testing must be used to identify and guide the handling and placement of potentially acid-forming materials. ARD control measures must be fully integrated with operational procedures, facility design, and environmental monitoring programs. ARD control must focus on prevention or control of the acid-forming reaction. If formation of ARD cannot be prevented, its potential migration must be prevented or controlled. Capture and treatment of ARD or other undesirable effluent is required if source controls and migration controls do not prove effective. Effluent treatment could be used only after source control has been employed.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Leaching and Processing Operations and Impoundmnts	Reclamation must include measures to isolate, remove, or control toxic or deleterious materials. Other requirements imposed would be based on site-specific review according to BLM policies (cyanide management policy, BLM state cyanide management plans, and ARD policy)	Same as Alternatives 1 and 2 plus includes BLM's cyanide policy: Cyanide facilities must be able to contain the maximum operating solution with capacity for the 100-year, 24-hour storm event, including snowmelt events and expected draindown from heaps during power outages. Secondary containment required for vats, tanks, or recovery circuits to prevent the release of toxic solutions. Heaps and other solution containment structures must be monitored for leaks. Cyanide solution and heaps must be detoxified upon release to the environment, temporary closure, or at final reclamation. Operations must not cause wildlife mortality. Exposed cyanide solutions must be fenced and covered to prevent access by the public, wildlife, and livestock. Neutralization may be used in lieu of fencing tailings impoundments.	
Stability, Grading and Erosion Control	Reclamation must include measures to control erosion, landslides, and runoff.	Erosion must be minimized during all phases of operations. All disturbed areas must be graded or otherwise engineered to a stable condition to minimize erosion and facilitate revegetation. All areas must be recontoured to blend in with the premining natural topography to the extent practical.	

Table 2-2. Existing and Final Proposed 3809 Regulations as Compared to the NRC Report			
Regulation Topic	**Existing 3809 Regulations (Alternative 1)**	**Proposed Final 3809 Regulations (Alternative 3)**	**NRC Study Committee Conclusions or Recommendations (From: *Hardrock Mining on Federal Lands*, NRC 1999)**
Pit Backfilling and Reclamation	Not specified. Stable highwall might be left where required to preserve evidence of mineralization.	BLM would determine degree of backfilling required, if any, from a site-specific operator demonstration of feasibility based on economic, environmental, and safety considerations. Mitigation would be required for pit areas that are not backfilled.	If backfilling of mines is to be considered, it should be determined on a case-by-case basis as was concluded by the COSMAR report (NRC, 1979). Site specific conditions are too variable for prescriptive regulation (pg. 90).

Page numbers are from the National Resource Council's *Hardrock Mining on Federal Lands* (NRC 1999).

Excerpts are taken nearly verbatim from the above cited report. "[S]" denotes where report text has been summarized.

A blank in the right-hand column shows no specific NRC conclusions or recommendations on the existing 3809 regulations or program. NRC made several general conclusions: (1) Existing regulations are generally well coordinated, although some changes are necessary, and (2) Improvements in the implementation of the existing regulations present the greatest opportunity for improving environmental protection and the efficiency of the regulatory process.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
MINERAL EXPLORATION AND DEVELOPMENT					
Common to all Alternatives	Increases in cost to mineral development will continue due to changing regulatory environment.				
Casual Use	High-use areas could continue to endure cumulative impacts that would cause unnecessary or undue degradation.	Depending on the state program, operations might or might not be reviewed. Disturbance might not be reclaimed. Operations would not be delayed or added costs incurred.	High-use areas would be reviewed, and if cumulative impacts are not negligible, they could be protected by land use plan designation. Notices or Plans would be required. Requiring suction dredge operators to contact BLM would delay activity, increase operation costs, and restrict access of small miners and recreationists to minerals.	All casual use operators would have to contact BLM to determine the potential level of operation, casual use or Plan of Operations, possibly delaying operations and increasing operation costs. Access of small miners and recreationists to minerals would be restricted.	Same as Alternative 1.
Notices	Notices would not be subjected to bonding, and some future operations might not be reclaimed.	Depending on the state program, operations might or might not be reviewed. Disturbance might not be reclaimed. Operations would not be delayed or added costs incurred.	Notices only for exploration would drive up costs for small mine operators. Bonding of Notices would increase exploration costs and reduce exploration activity.	No Notices would be allowed.	Same as Alternative 3.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
MINERAL EXPLORATION AND DEVELOPMENT (continued)					
Plans of Operations	Not bonding all Plans of Operation at 100% of reclamation costs could result in insufficient funds to perform reclamation if an operator files bankruptcy or refuses to perform reclamation. Common variety minerals could be mined under the Mining Law, and Federal Government could lose royalties. Withdrawn lands could have operations proceed in sensitive areas.	Depending on the State program, operations might or might not be reviewed, and environmental concerns might not get identified. Bonding might not be adequate to ensure reclamation performance. Same as Alternative 1. Same as Alternative 1.	Using a Plan of Operations to review all mines would increase likelihood that operations would meet the performance standards. Costs and workload for operators and BLM would increase. Bonds for reclamation should be adequate to ensure reclamation. Potential royalties for common variety minerals would be protected through establishment of an escrow account. Validity exams would ensure that surface disturbance did not occur in withdrawn lands without prior valid existing mining claims.	Requiring a Plan of Operations for all activity other than casual use would increase BLM workload and industry cost and cause delays. Bonds would be adequate to ensure reclamation performance and fund remediation of unplanned events. Requiring validity exams for all common variety minerals and withdrawn land areas before operations are approved would increase costs to industry, increase BLM workload and delay operations.	Same as Alternative 3. Same as Alternative 1 for common variety minerals and operations in withdrawn lands.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
MINERAL EXPLORATION AND DEVELOPMENT (continued)					
Inspection and Enforcement	Inspection would be based on policies, and enforcement would continue to be difficult. Operation might not have to reclaim because of enforcement delays.	Depending on the state program, inspection and enforcement might be limited. State organizations might not have resources to enforce requirements.	Inspection would be standardized, and the enforcement procedure would have the additional penalties tool to be used if needed. Reclamation and on-the-ground activities would be responded to in a timely manner.	Operations would have to hire a third-party contractor to do some of inspections, and penalties would be assessed automatically, costing industry time and money and increasing BLM's workload. Relationships between BLM and industry could be strained.	Same as Alternative 3.
Exploration	There would be no change to the costs for exploration activity.	Exploration costs could decrease depending on state program requirements. There would be fewer limitations on access to mineral exploration areas.	Exploration operations would continue to explore and not experience large delays. The requirement would increase the costs of operations and could economically harm small independent geologists and prospectors, who might also have difficulty obtaining bonds. Suction dredge operations would decrease, or, alternatively, trespass from suction dredging would increase on public lands.	Exploration projects would be delayed and costs would increase. Operators would find it difficult to modify the project in a timely manner. Increased costs could economically harm small independent geologists and prospectors. Since operations could be denied because of environmental concerns, the uncertainty of development of mineral properties could make industry unwilling to take the financial risk, even for exploration.	Exploration operations would continue to explore and not experience large delays. The requirement would increase the costs of operations and could economically harm small independent geologists and prospectors, who might also have difficulty obtaining bonds.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
MINERAL EXPLORATION AND DEVELOPMENT (continued)					
Mining	Mining would not undergo added costs or delays.	Cost of operations could decrease depending on the state program. There could be fewer or more limitations in requirements and in access.	Requiring Plans of Operations for all mining would increase costs and delays in projects. Many small operators could have difficulty providing a bond for Plan-level operations and meeting the environmental requirements. Bonds would be more difficult for larger operators to obtain because corporate guarantees would be discontinued. The uncertainty of development of mineral properties because of the substantial irreparable harm provision could make industry unwilling to take the financial risk, even for exploration.	Requiring Plans of Operations for all activity would increase costs and delays in projects. Many small operators would have difficulty providing a bond for Plan-level operations and meeting the environmental requirements. Bonds would be more difficult for larger operators to obtain because corporate guarantees would discontinued. The uncertainty of development of mineral properties because of the substantial irreparable harm provision could make industry unwilling to take the financial risk, even for exploration.	Requiring Plans of Operations for all mining would increase costs and delays in projects. Many small operators could have difficulty providing a bond for Plan-level operations and meeting the environmental requirements. Bonds would be more difficult for larger operators to obtain because corporate guarantees would discontinued.
CHANGES IN MINERAL ACTIVITY					
Casual Use/ Suction Dredging	Current levels not established.	No change.	5 to 10% overall decrease. 10 to 25% decrease in suction dredging.	40 to 50% overall decrease. 70 to 90% decrease in suction dredging.	No change.
Exploration	7,560 Notices 870 Plans	7,560 - 7,940 Notice level 870 - 910 Plan level	6,050 - 6,800 Notices 700 - 740 Plans	6,910 - 6,750 Plans	7,180 - 7,560 Notices 830 - 870 Plans

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
CHANGES IN MINERAL ACTIVITY (continued)					
Placer Mines (20yrs.)	2,520 Notices 750 Plans	2,650 - 2,520 Notice level 790 - 750 Plan level	0 Notices 2,650 - 2,980 Plans	2,650 - 2,330 Plans	0 Notices 2,980 - 3,140 Plans
Open Pit Mines (20yrs.)	1,080 Notices 1,050 Plans	1,080 - 1,130 Notice level 1,050 - 1,100 Plan level	0 Notices 1,500 - 1,900 Plans	530 - 1,070 Plans	0 Notices 2,080 - 1,970 Plans
Underground Mines (20yrs.)	120 Notices 150 Plans	120 - 130 Notice level 150 - 160 Plan level	0 Notices 220 - 250 Plans	210 - 230 Plans	0 Notices 240 - 270 Plans
Industrial Mines (20yrs.)	240 Notices 60 Plans	240 - 250 Notice level 60 - 70 Plan level	0 Notices 250 - 280 Plans	235 - 270 Plans	0 Notices 270 - 290 Plans
Mill Site Operations (20yrs.)	480 Notices 120 Plans	480 - 500 Notice level 120 - 130 Plan level	0 Notices 490 - 550 Plans	430 - 480 Plans	0 Notices 540 - 580 Plans
Notices and Plans / year	600 Notices 150 Plans	600 - 630 Operations < 5 ac. 150 - 160 Operations > 5 ac.	302 - 340 Notices 290 - 330 Plans	0 Notices 480 - 580 Plans	360 - 380 Notices 340 - 360 Plans
Acres Disturbed / yr.	8,700	8,700 - 9,200	6,700 - 7,580	4,800 - 6,440	8,120 - 9,630
HAZARDOUS MATERIALS AND WASTE MANAGEMENT					
Mine Waste	Mine waste might not be reclaimed properly and could cause contamination.	Same as Alternative 1, but BLM might not be aware of mine waste left on site.	Mine waste could be reclaimed to control potential contamination.	Mine waste (certain types of pond sludge, lab wastes, etc.) would be removed from public lands.	Same as Alternative 1.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
CLIMATE AND AIR QUALITY					
Climate and Air Quality	No impacts to climate. Impacts to air quality would continue at current levels. Direct impacts include noise; dust; gaseous and particulate emissions; exhaust from blasting, extracting, crushing, milling, and hauling. Most impacts would exist only during life of operations. All operations would continue to comply with all air quality laws, standards, and implementation plans.	Similar to Alternative 1. A cumulative increase in overall emissions could result from a 5% increase in mining. All operations would continue to comply with local, state, tribal, and federal air quality laws, standards, and implementation plans.	Similar to Alternative 1. A cumulative decrease in overall emissions could result from a 15% decrease in mineral activity. All operations would continue to comply with local, state, tribal, and federal air quality laws, standards, and implementation plans.	Similar to Alternative 1. A cumulative decrease in overall emissions could result in up to a 20% decrease in acreage disturbed and a 30% decrease in open pit mining. All operations would continue to comply with local, state, tribal, and federal air quality laws, standards, and implementation plans.	Similar to Alternative 1. A cumulative decrease in overall emissions could result from up to a 10% decrease in mining. All operations would continue to comply with local, state, tribal, and federal air quality laws, standards, and implementation plans.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
WATER RESOURCES					
Water Quality	Mining deeper into the sulfide ore zone could result in water quality problems with pit lakes and migration of contaminants into aquifers. Potential acid rock drainage and leachate might enter surface or ground water. Tailings and process pond runoff or leakage could enter surface water and cause heavy metals contamination. Character of local aquifer could change due to physical removal and replacement of geologic material in backfilling.	Variable, depending on state program.	Reduced risk of degraded groundwater quality through backfilling, grouting of exploration holes, and use of source controls for handling acid-forming materials. Improved requirements for baseline data collection and increased ground water monitoring programs would provide early detection and mitigation of potential impacts.	Alternative 4 has the lowest potential for water quality impacts of all alternatives. Pit lake impacts on water quality would decline due to pit backfilling and requirement that pit lakes not exceed acute toxicity standards. Design controls would reduce the risk of contamination from leaks or facility failures. Decreased mining activity would reduce the potential for impacts to water quality.	Provides for improved water quality protection by establishing pit water quality conditions suitable for the long-term use of the site and affected ground and surface waters. Planning for long-term closure or treatment would help mitigate or avoid later problems.
Water Quantity	Dewatering could cause some streams and springs to dry up and increase streamflow in other streams, altering stream morphology and character. Some streams might be diverted from channels and rerouted.	Same as Alternative 1.	Dewatering effects would continue about the same as under Alternative 1.	Dewatering effects would be similar to Alternatives 1 and 3, but possibly reduced with fewer operations.	Dewatering effects would be similar to Alternatives 1 and 3.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
SOILS					
Acres/Year Soil Disturbed	8,700	8,700 to 9,260	6,700 to 7,580	4,800 to 6,440	8,120 to 9,630
Soil Salvage and Reclamation Availability	Soil salvage limited to topsoil. Reclaimed surface may not support the same plants or diversity as before disturbance.	Same as Alternative 1.	Soil salvage limited to topsoil or replacement soil. Reclaimed surface may not support the same plants or diversity as before disturbance, but better overall plant production expected.	Soil salvage includes topsoil and subsoil. Reclaimed surface should support the plants and diversity similar to the preexisting plant community.	Same as Alternative 1.
Post-Reclamation Erosion Control and Soil Loss Potential	Stability requirement would generally limit soil loss. Emphasis on revegetation would reduce erosion.	Same as Alternative 1.	Stability requirement would generally limit soil loss. Greater emphasis on revegetation would reduce erosion.	Regrading to 3h:1v slopes and increased revegetation requirements would reduce soil loss.	Same as Alternative 1.
VEGETATION					
Acres /Year Vegetation Disturbed	8,700	8,700 to 9,260	6,700 to 7,580	4,800 to 6,440	8,120 to 9,630
Reclamation Timing and Diversity-Density	Quick reestablishing of vegetation cover (except in Alaska), long-term increase in diversity, and use of native species.	Same as Alternative 1.	Quick reestablishing of vegetation cover would result in more timely reestablishing of a diverse native cover.	Would ensure establishing of native cover to at least 90% of adjacent undisturbed lands within 10 years.	Same as Alternative 1.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
VEGETATION (continued)					
Noxious Weed Infestation of Disturbance	Long-term improvement in weed control as policies are implemented.	Lack of comprehensive effort to control weeds would likely result in increased infestations.	Greater emphasis on weed control would reduce infestations.	Mandatory weed control would reduce or eliminate weed infestations.	Same as Alternative 1.
RIPARIAN-WETLAND RESOURCES					
Mitigation/ Replacement and Protection	Nature, duration, and extent of riparian-wetland disturbance would continue as in past. Mitigation not required for BLM-defined riparian-wetland habitat but generally conducted with fish and wildlife rehabilitation. Mitigation usually consists of creating new areas. Replacement areas would not restore lost function for many years. Mitigation would also not address problems of temporal or spacial loss of function.	Nature of riparian-wetland disturbance would be similar to Alternative 1. Impacts to riparian-wetland areas meeting BLM criteria would likely not be mitigated unless state has specific requirement to do so.	Lost or degraded riparian-wetland areas would be reclaimed or mitigated to achieve proper functioning condition (PFC). BLM would set recovery time for PFC. In the long term no more riparian-wetland habitat or function would be lost. Mitigation would not address problems of temporal or spacial loss of function. BLM's ability to require detailed baseline information for riparian-wetlands could help increase success rate of mitigation through improved design. The substantial irreparable harm standard would protect significant wetland and riparian areas.	The nature of unavoidable disturbance would be similar to that under Alternative 3. The time requirement to meet PFC, the greater restoration: disturbance mitigation required, and ability to require baseline data would offset the uncertain nature of mitigation and loss of temporal and spacial function. The requirement to prevent irreparable harm would protect wetland and riparian areas from loss of productivity. Bonding would cover the cost of actions taken to correct degradation of riparian-wetland areas from unplanned events.	Riparian-wetland areas would receive slightly more protection than under Alternative 1 due to the more stringent performance standard. Nonjurisdictional wetlands would not be protected, and restoring riparian areas to PFC would not be required by regulation.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
AQUATIC RESOURCES					
Habitat Protection and Rehabilitation	The removal of riparian vegetation would result in long-term loss of aquatic habitat: 25 to 50+ years, or until riparian-wetland areas reestablish to PFC. Aquatic communities could be displaced by increased streamflow during dewatering and deficient flows after dewatering. Increased sedimentation and turbidity expected over the long term. Runoff and seepage of contaminates during perpetual treatment could threaten aquatic life. Suction dredging could degrade aquatic habitat and cause increased mortality of juvenile fish.	Nature, duration, and extent of impacts to aquatic habitat and communities would be similar to those under Alternative 1. States might require that aquatic habitat be restored to premining condition. In some states (e.g. California) suction dredging impacts to aquatic habitat and communities would be reduced or avoided because of specific state permit requirements.	The requirement to minimize disturbance to aquatic resources would slightly lessen habitat impacts. Habitat disturbance would be similar to that under Alternatives 1 and 2. The duration of disturbance might be slightly less because of BLM's ability to set the time frame for riparian-wetland recovery. Impacts of suction dredging would be reduced. The ability to require detailed baseline environmental information should increase rehabilitation success.	Impacts would be similar to those under Alternative 3. Duration and extent of impacts could be greatly reduced by the required 10 year time frame for habitat restoration. Offsite riparian-wetland mitigation at a ratio of 1.5 to 1 would help offset the temporal and spacial functional loss of riparian-wetlands. Runoff, seepage of contaminants would not as greatly threaten aquatic life because BLM could designate some acid-producing deposits as unsuitable for mining. Bonding would cover actions needed to mitigate impacts from unplanned events providing a safeguard against long-term impacts.	Aquatic resources would receive similar protection as under Alternative 1. Requiring Notice-level bonding would help ensure rehabilitation but would not protect resources from unplanned events.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
AQUATIC RESOURCES (continued)					
Protecting Fish and Invertebrate Populations	Fish and invertebrates, including sensitive species, would continue to be displaced, injured, and killed. The level of impact would vary by state and specific site.	Impacts to fish, including sensitive species, would be similar to Alternative 1.	Protection of common and sensitive fish species would be increased compared to Alternative 1. BLM could prevent operations that would cause substantial harm to significant aquatic resources.	Protection similar or greater than under Alternative 3.	Protection of common and sensitive fish species would be similar to that under Alternative 1.
WILDLIFE AND THREATENED AND ENDANGERED SPECIES					
Protecting Wildlife Resources	Wildlife protection would be similar to the levels reported during the past 10 years, but new mining and reclamation technologies and the strengthening of related regulations and policies would better protect wildlife over time.	Overall, protection of wildlife would decrease slightly as a result of differing state regulatory requirements and lack of BLM review.	Better protection of wildlife would contribute to the maintenance of wildlife populations at present levels and maintenance or enhancement of habitat through improved and careful planning and more specific reclamation standards.	Offers most protection of wildlife of all alternatives because the reclamation standards are the most stringent and specific time frames would be set for reclamation. These provisions would promote the conserving or reestablishing of a viable, diverse habitat in a timely manner, thus reducing the time that habitat would be unsuitable for species.	Similar to Alternative 1, but wildlife habitat would receive increased protection through the Plans of Operations required for all mining activity.
WILD HORSES AND BURROS					
Wild Horses and Burros	Impacts would be similar under all alternatives and proportional to the amount of mineral activity. Herds could be displaced by noise, vehicle traffic, human presence, or loss of forage or water sources. Water sources could be lost by restricted access or dewatering. Sensitivity would be most acute during spring foaling.				

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
LIVESTOCK GRAZING					
Livestock Grazing	Impacts would be small under all alternatives. Mining has affected an estimated 0.1% of animal unit months since 1981. Mining displaces livestock grazing by disturbing forage, water sources, or other range developments. Impacts could be mitigated; otherwise, the level of grazing would have to be reduced on the grazing permit or lease. After reclamation some grazing might be reestablished.				
SPECIAL STATUS AREAS					
Types of Designated Special Status Areas in 3809 Regulations	Lands in the California Desert Conservation Area (CDCA), National Wild and Scenic River System, areas of critical environmental concern (ACECs), designated wilderness, and areas closed to off-road vehicle (ORV) use.	Would not provide special protection to special status areas.	Requiring Plans for all mining and milling and expanding special status lands would improve protection of unique or valuable resources in national monuments, national conservation areas and critical habitat for threatened or endangered species.	Since Alternative 4 requires Plans for all but negligible disturbance, it gives all lands special status area protection in this respect.	Same as Alternative 1.
Protection Level	Plans and bond required for any activity. Activity within CDCA, Wild and Scenic River System, and wilderness areas would have to meet stated levels of resource protection or reclamation required by statutes.	Mining within CDCA, Wild and Scenic River System and in wilderness areas would continue to have to meet the levels of resource protection or reclamation required by statutes establishing these areas. ACECs and areas closed to ORVs would be protected as provided for by state regulatory programs.	Same as Alternative 1, except land use plans and the requirement to prevent substantial irreparable harm would protect special status areas that do not have stated levels of resource protection or reclamation required by statute.	Suitability requirements and the requirement to prevent irreparable harm would protect resources for which special status areas were designated. Requirement for American Indian concurrence for activity in areas designated as valuable for traditional cultural resources would protect those areas and resources.	Same as Alternative 1. In addition, the requirement to file a Plan of Operations instead of a Notice for any mining would afford increased protection to resources in areas that were not added to the special status category.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
RECREATION					
Recreational Mining	No change from present.	Similar to Alternative 1.	Slight decline in participation.	Decline in participation.	No change from present.
Other Recreation Users	Mix of recreational opportunities would change. Primitive recreation opportunities would continue to decrease, while opportunities for more developed recreation would increase.	Similar to Alternative 1, but proportionately greater decrease in primitive recreation opportunities and increase in developed recreation would result from 5% overall increase in mining.	Similar to Alternative 1, but proportionately smaller decrease in primitive recreation opportunities and increase in developed recreation from 5% overall decrease in mining.	Similar to Alternative 1, but greater potential for preserving recreation opportunities at the primitive end of the spectrum would result from potential 30% decrease in mining. Developed recreation opportunities created by mining and increased access would be forgone.	Similar to Alternative 3.
VISUAL RESOURCES					
Visual Quality	No change from current conditions. In some locations severe visual effects would result.	Effects to visual quality would be greater than under Alternative 1 because of less emphasis on scenic quality and small increase in activity.	Effects to visual quality would be much less severe than under No Action because of greater emphasis on visual resources and lower level of mineral activity.	Similar to Alternative 3 but less impact to visual resources due to pit backfilling requirement.	Similar to Alternative 1.
VRM Compliance	Some projects would not meet VRM objectives.	VRM guidelines would not apply.	Projects would not be likely to meet VRM objectives.	Most projects would meet VRM objectives.	Some projects would not meet VRM objectives.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
PALEONTOLOGICAL RESOURCES					
Paleontological Sites	Low impacts from Notice-level activity. Plan-level activity would benefit paleontological sites due to discovery and inventory of previously unknown sites	Without BLM project review a net loss of site information would result.	Requirements for inventories and mitigation development before surface disturbance would reduce or possibly prevent most potential impacts. Increased recovery time would benefit paleontological resources in cases of incidental discovery.	Same as Alternative 3. Eliminating Notices and unrestricted data recovery time would virtually eliminate adverse impacts and might benefit acquisition of paleontological data.	Requiring Plans for all activities except casual use and exploration would reduce impacts of Notice-level activities.
CAVE RESOURCES					
Cave Sites	Notices, Plans, and current mining would have more indirect than direct impacts to caves.	Loss of cave resources from both Notice- and Plan-level activity.	Some reduction in impacts because of reduced activity and added inventory and mitigation requirements for cave resources.	Greatest reduction in impacts because of moderate reduction in mineral activity and requirement that all disturbance above casual use undergo environmental review.	Requiring Plans for all activities except casual use and exploration would reduce impacts of Notice-level activities.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
CULTURAL RESOURCES					
Historic Properties (Non-Traditional Cultural Properties)	3% of Notices would affect historic properties due to limited advance review of Notice-level activities. Plan-level operations would not affect historic properties due to advanced inventory, consultation, and mitigation.	Increased impacts to cultural resources without BLM review, consultation, or mitigation.	Increased time frame for site recovery would reduce impacts to incidental discoveries.	Eliminating Notices would virtually eliminate impacts to historic properties because of advance inventory, consultation, and mitigation, including operations on split-estate lands.	Requiring Plans for all activities except casual use and exploration would reduce impacts of Notice-level activities.
Traditional Cultural Properties (TCPs)	Impacts would continue from Plan- and Notice-level operations. Some impacts would continue due to large size of most traditional cultural properties, making avoidance impractical as mitigation.	With increases in mining, impacts from Notice- and Plan-level activity would increase. Without BLM's inventory, consultation, and mitigation, impacts would increase.	Impacts would decrease because of a slight decrease in mineral activity and greater proportion of Plans requiring inventory, consultation with American Indians, and opportunity for mitigation. The new definition of unnecessary or undue degradation would also reduce impacts.	Decreased activity would greatly reduce potential for impacts. Eliminating Notices would greatly reduce impacts by requiring advanced inventory, consultation, and mitigation. Some residual impacts could still result because of the large size of some traditional cultural properties, making avoidance impractical as mitigation.	Similar to Alternative 1. Requiring Plans for all mining would reduce impacts of Notice-level activities.

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Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
AMERICAN INDIAN RESOURCE CONCERNS					
Trust Resources	Potential for impacts from Notice-level operations would continue.	Potential for impacts would increase without BLM review of activity that might affect trust resources.	Requiring Plans for all mining would reduce impacts of present Notice-level activities. Probable reduction in impacts due to decrease in activity and increased proportion of mining activity requiring consultation.	Reduction or elimination of impacts due to moderate decrease in activity and removal of Notice provision, therefore requiring consultation on all activity greater than casual use that might affect trust resources.	Requiring Plans for all mining would reduce impacts of present Notice-level activities.
Traditional Cultural Practices and Resources	Some residual impacts could not be mitigated and would continue.	Increased impacts expected from lack of mandated consultation or mitigation development.	Requiring Plans for all mining would reduce impacts of present Notice-level activities. Moderate decrease in impacts due to reduction in mineral activity, increased amount of consultation and mitigation, and requirement to prevent substantial irreparable harm to significant cultural resources.	Substantial decrease in impacts due to moderate reduction in activity and required concurrence by American Indians before allowing disturbance of lands with traditional cultural resources.	Requiring Plans for all mining would reduce impacts of present Notice-level activities.
Subsistence Resources	Potential for impacts from Notice-level operations would continue. ANILCA would prevent impacts from Plan-level activity.	Increased potential for impacts from increased activity and lack of BLM reviews or approvals of mineral activity.	Requiring Plans for all mining would reduce impacts of present Notice-level activities.	Impacts from Notice-level operations would be eliminated. ANILCA would prevent impacts from Plan-level activity.	Requiring Plans for all activities except casual use and exploration would reduce impacts of Notice-level activities.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
SOCIAL CONDITIONS					
Small Miners	No effect.	No effect.	Potential for minor to major effects if alternative employment must be found due to greater restrictions on small operations.	Potential for major effects. Plan requirements difficult for most small operators. Major effect if alternative employment must be found.	Potential for minor effects due to potential for a slight decline in mineral activity. Major effects if alternative employment must be found due to greater restrictions on small operations.
Communities	No effect.	Potential for minor benefits to mining-dependent communities due to slight increase in overall mining.	Potential for minor to significant adverse effect to mining-dependent communities including declines in social well-being due to potential for up to a 30% decrease in some types of mining.	Potential for significant adverse effect to mining-dependent communities, including declines in social well-being due to potential for up to 75% decrease in some types of mining.	Potential for minor negative effects to mining-dependent communities due to potential for a slight decline in mineral activity.
Environmental Advocacy Groups	Would not favor. Not enough resource protection.	Would oppose this Alternative.	Would favor this alternative.	Would favor this alternative.	Would not favor this alternative.
General Public	Inconsistent with attitudes of increasing numbers of people that resources should be better protected.	Same as Alternative 1.	Consistent with attitudes of increasing numbers of people that resources should be better protected.	Consistent with attitudes that resources should be better protected but some might feel it goes too far to protect resources over commodity use.	Consistent with attitudes that resources should be better protected, but some might feel it doesn't go far enough to protect resources.

Table 2-3. 3809 Regulations Summary of Impacts by Alternative					
Affected Resource or Activity	**Alternative 1: Existing Regulations (No Action)**	**Alternative 2: State Management**	**Alternative 3: Proposed Regulations (Preferred Alternative)**	**Alternative 4: Maximum Protection**	**Alternative 5 NRC Recommendations**
ECONOMIC CONDITIONS					
Total Annual Mineral Production Value	$1.7 billion	$1.7 to $1.78 billion (up to +5% across study area)	$1.21 to $1.53 billion (-10% to -28% across study area)	$532 to $925 million (-45% to -69% across study area)	$1.6 to $1.69 billion (-1% to -6% across study area)
Total Annual Employment	21,310 jobs	21,310 to 22,380 jobs	19,200 to 15,240 jobs	6,670 to 11,610 jobs	20,050 to 21,160 jobs
Total Annual Personal Income	$1.39 billion	$1.39 to $1.46 billion	$994 million to $1.25 billion	$435 to $758 million	$1.31 to $1.38 billion
Total Annual Industry Output*	$3.08 billion	$3.08 to $3.23 billion	$2.20 to $2.77 billion	$963 million to $1.68 billion	$2.99 to $3.06 billion
Local Economies	No impact.	Positive impacts mainly from increased level of local mining. Impact would depend on a variety of factors: level of activity now occurring, degree of community's specialization in mining, and community size.	Negative impacts mainly from decreased level of local mining. Impact would depend on a variety of factors, including the level of activity now occurring, degree of community's specialization in mining, and community size.	Negative impacts similar to Alternative 3, but many more communities are likely to be affected. Degree of impact would depend on a variety of factors: level of activity now occurring, degree of community's specialization in mining, and community size. Communities in Nevada would see greatest impact relative to other states.	Negative impacts similar to Alternative 3 but not as great.
*Includes multiplier effect of mining industry expenditures.					